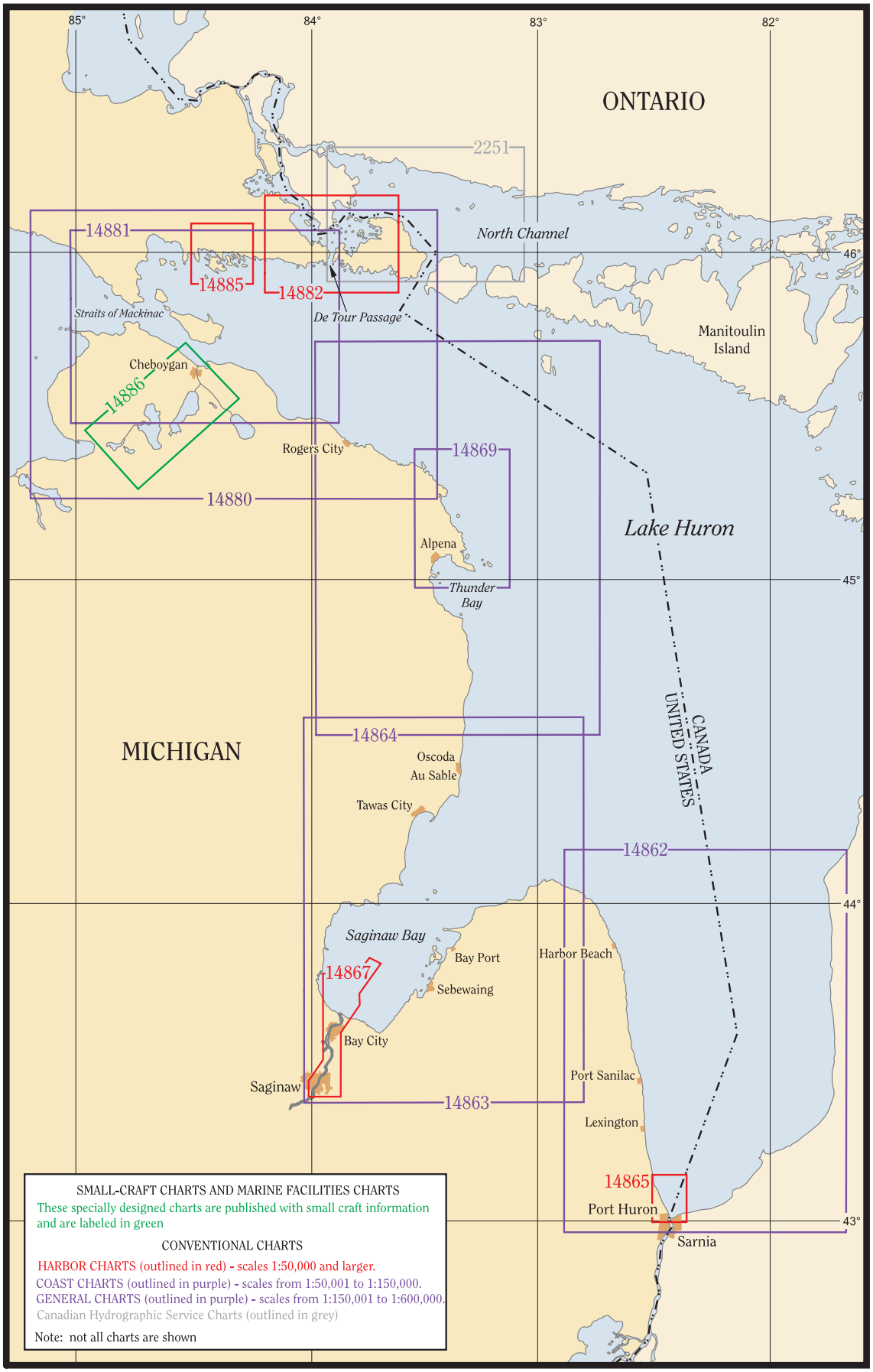
85°
84°
83°
82°
ONTARIO
2251
14881
14885
14882
North Channel
46°
Straits of Mackinac
De Tour Passage
Manitoulin
Island
Cheboygan
14886
Rogers City
14869
14880
Lake Huron
Alpena
45°
Thunder
Bay
CANADA
UNITED STATES
MICHIGAN
14864
Oscoda
Au Sable
Tawas City
14862
44°
Saginaw Bay
Bay Port
Harbor Beach
14867
Sebewaing
Bay City
Saginaw
Port Sanilac
14863
Lexington
14865
Port Huron
43°
Sarnia
SMALL-CRAFT CHARTS AND MARINE FACILITIES CHARTS
These specially designed charts are published with small craft information and are labeled in green
CONVENTIONAL CHARTS
HARBOR CHARTS (outlined in red) - scales 1:50,000 and larger.
COAST CHARTS (outlined in purple) - scales from 1:50,001 to 1:150,000.
GENERAL CHARTS (outlined in purple) - scales from 1:150,001 to 1:600,000.
Canadian Hydrographic Service Charts (outlined in grey)
Note: not all charts are shown

Lake Huron

Chart Datum, Lake Huron

(1) Depths and vertical clearances under overhead cables and bridges given in this chapter are referred to Low Water Datum, which for Lake Huron is on elevation 577.5 feet (176.0 meters) above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

Dimensions, etc.

(2) Length, steamer track, De Tour Passage to Fort Gratiot; 223 miles.

(3) Length, steamer track, Straits of Mackinac to Fort Gratiot; 247 miles.

(4) Length (right line), Drummond Island, at nearest point to entrance of False Detour, to Blue Point; 206 miles.

(5) Breadth (right line), on about latitude 44°30'N.; 183 miles.

(6) Depth, maximum recorded by NOS; 750 feet.

(7) Water surface of lake (including St. Marys River below Brush Point, North Channel, and Georgian Bay); 9,100 square miles (U.S.), 13,900 square miles (Canada).

(8) Entire drainage basin (including St. Marys River below Brush Point, North Channel, and Georgian Bay); 25,300 square miles (U.S.), 49,400 square miles (Canada).

General description

(9) **Lake Huron** is the second largest of the Great Lakes. Three large bays extend from the main body of the lake, Saginaw Bay on the W side and North Channel and Georgian Bay on the NE side. The lake receives the waters of Lake Michigan through the Straits of Mackinac and those of Lake Superior from the St. Marys River. The lake discharges at its S end into St. Clair River at Fort Gratiot. The lake is a connecting link in the Great Lakes chain. The depth of water in St. Marys River, St. Clair River, and Detroit River governs the draft of vessels navigating Lake Huron to and from Lakes Superior and Erie.

Vessel Traffic Service

(10) The Canadian Coast Guard operates a Vessel Traffic Service in Canadian waters from Long Point in Lake Erie through the Detroit and St. Clair Rivers to De Tour Reef Light in Lake Huron. (See chapter 3 and the Annual Edition of Canadian Notices to Mariners for complete information.)

Fluctuations of water level

(11) The normal elevation of the lake surface varies irregularly from year to year. During the course of each year, the surface is subject to a consistent seasonal rise and fall, the lowest stages prevailing during the winter and the highest during the summer.

(12) In addition to the normal seasonal fluctuations, oscillations of irregular amount and duration are also produced by storms. Winds and barometric pressure changes that accompany squalls can produce fluctuations that last from a few minutes to a few hours. At other times, strong winds of sustained speed and direction can produce fluctuations that last a few hours or a day. These winds drive forward a greater volume of surface water than can be carried off by the lower return currents, thus raising the water level on the lee shore and lowering it on the windward shore. This effect is more pronounced in bays and at the extremities of the lake, where the impelled water is concentrated in a small space by converging shores, especially if coupled with a gradually sloping inshore bottom which even further reduces the flow of the lower return currents. This condition is very pronounced at the mouth of Saginaw River.

Weather, Lake Huron

(13) Gales are most frequent in autumn. By late summer there is a noticeable increase, lakewide, in the frequency of gales, and this increase continues until the end of the navigation season. During November and December, gales are blowing 5 to 10 percent of the time, while windspeeds of 28 knots or more may be encountered up to 23 percent of the time. These winds are mainly generated by winter storms; their frequency falls dramatically in spring. By June and July, gales are expected less than 1 percent of the time, while winds of 28 knots or more blow less than 3 percent of the time. However, squall lines and thunderstorms can produce

violent short-period winds from spring through fall. For example, the strongest measured wind on Lake Huron's open waters occurred in August 1965 and was measured at 95 knots from WNW. Shoreline extremes range from 43 to 53 knots. Directions of these extremes are often out of the SW; but W, NW, and NE winds have set some of these records. Most of the records were set from late fall through late winter.

(14) The shape of Lake Huron is such that strong winds from any quarter may generate rough seas somewhere on the lake. S through W winds are common in early autumn, while westerlies and southwesterlies prevail in late autumn. W through NW winds are often the strongest. Winds from a northerly quadrant can raise dangerous seas in the S, especially near the S outlet of the lake. In the central waters a long fetch of strong easterlies or northeasterlies can generate high seas along the Michigan shore, which run athwart the N-S traffic through the lake. Southerlies can be dangerous particularly near the converging N shore. If the fetch and duration are sufficient, waves of 10 feet or more can be generated in open waters by winds from any direction once they reach 20 knots or more. This occurs most often during October, November, and December, when waves of 10 feet (3 m) or more can be expected 2 to 4 percent of the time in the NW and S parts of the lake and 4 to 7 percent in the wide central portion. Extreme waves of 20 to 22 feet (6 to 7 m) have been encountered throughout the lake.

(15) Dense fog plagues the mariner most often in spring and early summer over the open lake waters. From April into July visibilities drop below 0.5 mile up to 11 percent of the time. May and June are the worst times, and the cold, central waters are the most likely place. These fogs are usually the result of warm air moving across the lake that is still cold from the previous winter season. They often come on winds with a southerly component; but NW, NE, and E winds also bring them. Fog is most prevalent and thickest during the morning hours. Rain, blowing snow and low clouds also reduce visibilities, particularly from late fall through early spring.

(16) Thunderstorms are most frequent from April through October, with peak activity during June, July, and August. Over the open water during this peak season thunderstorms are encountered 2 percent of the time. They are most likely between midnight and sunrise. Onshore thunderstorms can be expected on 4 to 7 days per month in the summer months. They are most likely during the late afternoon.

Ice

(17) The central part of Lake Huron is mainly an open water area, but drifting patches of thin ice may be present from early February until mid-March. These patches drift S toward the St. Clair River. An ice bridge forms across the head of the river. Ice accumulates to a depth of 12 to 18 inches above the ice bridge; the bridge itself achieves a much greater thickness. The ice bridge is occasionally broken by high winds.

(18) In North Channel, fast ice forms in mid-January and reaches a thickness of 25 to 30 inches by mid-March, then decays rapidly and clears by mid-April. In Georgian Bay, ice begins to form near the end of December, and fast ice is well established by early January. The cover spreads over the entire bay by the end of January, but although concentrations are high, the ice is moved around by the wind to form leads and dispersed ice areas. This ice usually reaches the thick category during the first half of March. Decay begins in mid-March; the ice melts within the bay, and the area is clear by mid-April. Rotting fast ice may be present in some areas until the end of April.

(19) The Straits of Mackinac is subject to severe problem ice conditions. The area is very susceptible to wind action, and the ice cover is unpredictable. Ice forms early in the season in the Straits and attains an average thickness of 17 inches and an average maximum thickness of 25 inches. The solid ice thickness remains about the same throughout the season. The prevailing W winds cause considerable ridging and 4–to 6–foot windrows are common. Some ice ridges as much as 30 feet deep have been reported.

(20) Ice normally begins to form in harbors and shallow-water areas in early December with ice fields and concentrated brash forming in early January. The first ice barrier across the Straits usually forms between Waugoshance Point and St. Helena Island.

(21) As ice forms in South Channel and between St. Ignace and Mackinac Island, these waters are closed to navigation to allow the formation of ice bridges. Mariners are notified of the closure by Broadcast Notice to Mariners.

(22) Prevailing W winds cause ice conditions at the Lake Michigan end of the Straits of Mackinac to be more difficult than at the Lake Huron end. From the Mackinac Bridge to Lansing Shoals, the Straits are normally frozen over with solid plate ice by mid-January. Heavy accumulations and ridging occur in the vicinity of St. Helena Island, White Shoal, and the reefs along the Upper Peninsula of Michigan. To avoid danger to vessels, Grays Reef Passage may be closed to navigation; mariners will be informed of any closure by Broadcast Notice to Mariners.

(23) As deterioration begins in March or April, stable fast ice becomes drift ice moving with winds and currents. Tracks cut by icebreakers become unreliable as the ice field deteriorates and shifts. Thick shore ice may

drift into otherwise open channels and endanger even ice-reinforced vessels. A vessel which becomes beset in drift ice is vulnerable to grounding because of the many shoals, reefs and shallow-water areas in the Straits of Mackinac.

(24) Wind-driven currents in the western Straits run eastward. Vessels beset in ice southeast of St. Helena Island have become endangered by drifting toward McGulpin Point or the Mackinac Bridge pilings.

(25) The brash and drift ice between Mackinaw City, St. Ignace and Round Island remains east of the Mackinac Bridge, trapped by the ice in South Channel. The NNW winds will flush this ice out into Lake Huron when the ice in South Channel begins to break up.

(26) Coast Guard icebreakers assigned to the Straits of Mackinac are based in St. Ignace and Cheboygan. Their services can be requested through Commander, Coast Guard Group Sault Ste. Marie; VHF-FM channel 16. (See Winter Navigation, chapter 3.)

Routes

(27) The Lake Carriers' Association and the Canadian Shipowners Association have recommended, for vessels enrolled in the associations, the following separation of routes for upbound and downbound traffic in Lake Huron:

(28) Downbound vessels shall lay a course from De Tour Passage of **137°** for 56 miles to pass not less than 15 miles **045°** from **Middle Island Light**, then a course of **161°** for 105 miles to not less than 12 miles **067°** from **Harbor Beach Light**; then a course of **180°** for 57 miles to the entrance to Lake Huron Cut.

(29) Downbound vessels from the Straits of Mackinac shall lay a course of **070°** for 6 miles from a point S of Poe Reef; then a course of **115°** for 61 miles to join the regular downbound course from De Tour Passage at a point not less than 15 miles **045°** from Middle Island Light.

(30) Downbound vessels from Calcite from a point abreast of Adams Point (45°24.9'N., 83°43.0'W.) shall lay a course of **100°** for 30 miles to intersect the regular downbound course from De Tour Passage at a point not less than 15 miles **045°** from Middle Island Light.

(31) Downbound vessels from Stoneroot Harbor shall lay a course of **098°** for 18 miles to intersect the regular downbound course from De Tour Passage at a point 14 miles **071°** from Middle Island Light.

(32) Downbound vessels from Alpena shall steer **159°** for 58 miles on Harbor Beach Light to a point 12 miles **353°** from **Points aux Barques Light**; then a course of **134°** for 28 miles to intersect the regular downbound course from De Tour Passage at a point 12 miles **067°** from Harbor Beach Light.

(33) Downbound vessels from De Tour Passage to Cove Island from a position abreast of **De Tour Reef Light** shall lay a course of **137°** for 12 miles; then **123°** for 37 miles to a position 10 miles **213°** from **Great Duck Island Light**, then **103°** for 61.25 miles to a position with Cove Island Lighted Bell Buoy T abeam.

(34) Downbound vessels from Cove Island to Lake Huron Cut from a position abreast of Cove Island Lighted Bell Buoy T shall lay a course of **225°** for 7 miles; then **189°** for 157 miles to Lake Huron Cut.

(35) Eastbound vessels from the Straits to northern ports on the W side of Lake Huron shall take departure from 0.5 mile NNE of **Cordwood Point Lighted Buoy 1** and steer not less than **117°** for 47 miles to a point 2.5 miles off Presque Isle Light; then steer **138°** for 23.4 miles to a point on the upbound recommended course off Nordmeer Wreck Lighted Bell Buoy WR1.

(36) Southbound vessels bound for Alpena from **Nordmeer Wreck Lighted Bell Buoy WR1** shall steer **189°** for about 7.25 miles to a point 1.5 miles abeam of Thunder Bay Island Light; then steer **227°** on Thunder Bay Traffic Buoy for 5.5 miles; then to destination.

(37) Southbound vessels bound for Saginaw from Nordmeer Wreck Lighted Bell Buoy WR1 shall steer **181°** for 29.5 miles to a point 6 miles E of Sturgeon Pt. Light; then steer **189°** for 27.75 miles to a point 3 miles E of **Au Sable Point Lighted Buoy 1**; then steer **224°** for 19.25 miles to Charity Island Lighted Bell Buoy 5; then to destination.

(38) Upbound vessels shall lay a course of **353°** for 54 miles to pass not more than 5 miles **067°** from Harbor Beach Light; then steer **341°** for 99 miles to pass not over 7 miles **071°** off Middle Island Light; then a course of **325°** for 60 miles to De Tour Passage.

(39) Upbound vessels for the Straits of Mackinac shall lay a course of **318°** for 16.5 miles from off Middle Island Light to a point 5 miles **050°** from Presque Isle Light; then steer a course of **295°** for 47 miles to abreast of Cordwood Point Lighted Buoy 1; then steer a course of **270°** for 3 miles to a point off **Poe Reef Light.**

(40) Eastbound vessels from Round Island Passage shall lay a course of **090°** for 22 miles to a point 4.75 miles off Martin Reef Light; then steer a course of **061°** for 14 miles to point 0.75 miles **128°** from De Tour Reef Light.

(41) Upbound vessels from Lake Huron Cut to Cove Island shall steer a course of **037°** for 15 miles; then steer a course of **008°** for 143.5 miles to Cove Island Lighted Bell Buoy T.

Caution

(42) A wreck covered 29 feet is W of the trackline about 10.5 miles **018°** from Fort Gratiot Light in about 43°09.2'N., 82°21.5'W.

(43) Upbound vessels from Cove Island to De Tour Passage from a position abreast of **O'Brien Patch Lighted Bell Buoy TC** shall lay a course of **284°** for 61.5 miles to a position 6 miles **194°** from Great Duck Island Light; then steer **300°** for 48 miles to a position 3 miles **137°** from De Tour Light; then steer **317°** for 3 miles to a point 0.75 miles **128°** from De Tour Reef Light.

(44) It is understood that masters may exercise discretion in departing from these courses when ice and weather conditions are such as to warrant it. The recommended courses are shown on chart 14860, Lake Huron.

(45) It is recommended that the following limit of anchorage be observed in Lake Huron off De Tour Light so that vessels may enter or leave De Tour Passage in time of congestion due to fog or other conditions: No vessel to anchor E of a bearing on De Tour Light of **340°**, or closer than 0.75 mile to the light or N of the De Tour Martin Reef course.

Pilotage

(46) The waters of Lake Huron in the approach to St. Clair River S of 43°05'30"N. are Great Lakes designated waters; registered vessels of the United States and foreign vessels are required to have in their service a United States or Canadian registered pilot. The remaining waters of Lake Huron are Great Lakes undesignated waters; the above vessels are required to have in their service a United States or Canadian registered pilot or other officer qualified for Great Lakes undesignated waters. Registered pilots for St. Clair River are supplied by Lakes Pilots Association, and for Lake Huron by Western Great Lakes Pilots Association (See Appendix A for addresses.) Pilot exchange points are off Port Huron at the head of St. Clair River in about 43°05'30"N., 82°24'42"W. and at De Tour, Mich., at the entrance to St. Marys River. Three pilot boats are at Port Huron; HURON BELLE has an international orange hull with an aluminum cabin, and HURON MAID and HURON LADY each have an international orange hull with a white cabin. The pilot boat at De Tour, LINDA JEAN, has a green hull and a white cabin. (See Pilotage, chapter 3, and **46 CFR 401,** chapter 2.)

Principal ports

(47) The principal ports on Lake Huron are Bay City and Saginaw in the Saginaw River and Cheboygan. Private docks for deep-draft vessels are also at Alabaster, Port Gypsum, Alpena, Rockport, Stoneroot, Calcite, and Port Dolomite.

Charts 14862, 14865

(48) The S end of Lake Huron in the approach to the head of the St. Clair River is obstructed by an extensive shoal area. A dredged channel, maintained at the Federal project depth of 30 feet, leads S for about 6 miles through the shoals to the head of the river. The channel is marked by lighted buoys and a **180.3°** lighted range at Point Edward, Ont. A racon is at the front light. Lake Huron Cut Lighted Buoy 12 marks the entrance to the channel from Lake Huron. Lake Huron Cut Light 7, about 2.2 miles from the entrance, is equipped with a racon.

(49) **Fort Gratiot Light** (43°00.4'N., 82°25.4'W.), 82 feet above the water, is shown from a white brick conical tower on the W side of the head of St. Clair River. Port Huron Coast Guard Station is close S of the light. A **regulated navigation area** has been established off the Coast Guard Station. (See **33 CFR 165.1 through 165.13 and 165.920**, chapter 2, for limits and regulations.)

(50) Dredging spoils are adjacent to both sides of the dredged channel. On the E side of the channel, the spoil bank extends about 4 miles N from Point Edward and is about 1 mile wide with depths of 6 to 12 feet. A wreck, covered 15 feet, is E of the channel 3.4 miles NE of Fort Gratiot Light. On the W side of the channel, the spoil bank has depths of 9 to 15 feet for 4.5 miles N of Fort Gratiot Light, thence 16 to 24 feet for another 1.5 miles N.

(51) **Black River Canal**, entered about 1.4 miles NNW of Fort Gratiot Light, extends SW for about 1.1 miles to its junction with the Black River.

(52) From the head of the St. Clair River NNW for 19 miles to Lexington, the shore is low. In this stretch, the lake bottom is generally rocky with depths to 18 feet extending 1.3 miles offshore. A shoal with a least depth of 12 feet is 0.9 mile NE of the mouth of **Burtch Creek,** 7 miles S of Lexington. A 16-foot diameter potable water intake extends from shore 5.7 miles NNW of Fort Gratiot Light NE for 5 miles to a crib covered 38 feet. A wreck, covered 29 feet, is 10.7 miles NNE of Fort Gratiot Light.

Chart 14862

(53) **Lexington, Mich.**, is an artificial harbor 19 miles NNW of the head of St. Clair River. An elevated white water tank in Lexington is prominent from lakeward.

Channels

(54) A dredged entrance channel leads N from deep water in Lake Huron to a harbor basin and anchorage

area formed by two breakwaters. The harbor entrance is marked by buoys and by lights on the outer ends of the breakwaters. In June 2006, the controlling depth was 4 feet in the entrance channel to the basin, thence depths of 6 to 8 feet were available in the basin with lesser depths along the E edge.

(55) A wreck, covered 13 feet, is 0.6 mile ESE of the harbor entrance.

Small-craft facilities

(56) A marina developed by the Michigan State Waterways Commission is in the harbor basin. Transient berths, gasoline, diesel fuel, electricity, water, launching ramps, sewage pump-out facilities, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9.

(57) The shore from Lexington N for 11 miles to Port Sanilac consists of low bluffs. The 18-foot contour is about 0.6 mile offshore, and there are numerous submerged rocks as much as 0.5 mile offshore in this stretch. The most dangerous is a group of rocks that uncover during low water conditions about 5 miles N of Lexington.

(58) **Port Sanilac, Mich.**, an artificial harbor used by pleasure craft, is on the W shore of Lake Huron about 30 miles N of the head of St. Clair River. An elevated blue tank just N of the harbor is prominent from lakeward.

(59) **Port Sanilac Light** (43°25.8'N., 82°32.4'W.), 69 feet above the water, is shown from a white octagonal tower in the village, SW of the harbor basin.

Channels

(60) A dredged entrance channel extends N from deep water in Lake Huron on the W side of an extension of the N breakwater which protects the harbor entrance. The channel turns W between the N breakwater and a detached S breakwater into the harbor basin. The outer ends of the breakwaters are marked by lights. In June 2006, the controlling depth was 7.1 feet in the entrance channel and between the breakwaters to the basin, thence depths of 8 to 10 feet were available in the N part and 6 feet in the S part of the basin.

Small-craft facilities

(61) A marina developed by the Michigan State Waterways Commission is on the W side of the harbor basin. A private marina is in the basin. Transient berths, gasoline, diesel fuel, water, electricity, haul-out facilities, sewage pumpout, launch ramp, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. The private marina also provides a 20-ton hoist, and hull, engine, and electronic repairs.

(62) The private marina also provides a launching ramp, a 20-ton hoist, and hull, engine, and electronic repairs.

(63) From Port Sanilac the shore continues bluff and rocky for 29 miles N to Harbor Beach. The 18-foot contour is no more than 1 mile offshore, but numerous rocks, bare and submerged, present a hazard to small craft navigating this stretch. The most dangerous are a rock that bares about 0.3 mile offshore 1 mile N of Port Sanilac and a group of rocks, covered 3 to 6 feet, 0.5 mile offshore 11.5 miles N of Port Sanilac.

(64) **Forester, Mich.**, 5 miles N of Port Sanilac, can be identified by two church spires close to shore. There are no docks; shoals, rocks, and dock ruins render navigation hazardous. Landing should not be attempted without local knowledge.

(65) **Forestville, Mich.**, about 16 miles N of Port Sanilac, can be identified by the spire of a small white church. A rock jetty with a launching ramp on its N side extends about 200 feet from shore at the village. There is excellent holding ground SE of the jetty in 30 feet.

(66) From Forestville N to Harbor Beach numerous submerged rocks extend as much as 0.7 mile offshore.

(67) **Harbor Beach, Mich.**, is an artificial harbor about 60 miles N of the head of the St. Clair River. It is an important harbor of refuge for large vessels on the W shore of Lake Huron. A 300-foot stack at the powerplant in the N part of the harbor is prominent.

(68) **Harbor Beach Light** (43°50.7'N., 82°37.9'W.), 54 feet above the water, is shown from a white conical tower on the N side of the harbor entrance. A fog signal is at the light.

Channels

(69) A dredged entrance channel leads W from deep water in Lake Huron between detached breakwaters to a dredged anchorage basin inside the N breakwater. Lights mark the ends of the breakwaters at the harbor entrance, and buoys mark the channel inside the harbor. In July 2005, the controlling depth was 20 feet in the entrance channel (except for shoaling to 14.6 feet in a large area in the SW corner), thence depths of 16 to 20 feet were available in the buoyed section on the SW side of the basin (except for depths of 12.8 to 15 feet at the N end), thence depths in the remainder of the basin on the NE side were 13 to 16 feet with gradual shoaling to 6 feet towards the NW end.

(70) Small craft can enter the harbor through a gap in the N breakwater. In 1966, the controlling depth in the gap was 7 feet in the E half and 5 feet in the W half.

Small craft with local knowledge can enter the harbor at the S end; a depth of about 3 feet can be carried, taking care to avoid shoals and a wreck covered 1 foot off the S end of the S breakwater.

Dangers

(71) Two wrecks in the harbor, covered 6 feet and 1 foot, are about 0.6 mile WNW and WSW of Harbor Beach Light, respectively.

Coast Guard Station

(72) **Harbor Beach Coast Guard Station**, seasonal, is just N of Harbor Beach at Waterworks Park.

Harbor Regulations

(73) (See **33 CFR 207.480,** chapter 2, for harbor regulations.)

Wharves

(74) The Detroit Edison Co. Harbor Beach Power Plant Wharf is on the W side of the harbor about 0.7 mile NW of Harbor Beach Light. The wharf has 700 feet of berthing space with dolphins, and reported depths of 15 feet alongside. There is storage for 150,000 tons of coal.

(75) No services, other than dockage along the breakwater, are available to large vessels in Harbor Beach.

Small-craft facilities

(76) An 850-foot public dock WSW of the harbor entrance is in reasonably good condition and has a launching ramp on its N side. A Michigan State Waterways Commission marina is at the N end of the harbor. In 1985, the controlling depth was 2 feet in the entrance, thence 2 feet in the basin with 1½ feet along the N edge. A private marina is located just S of the Detroit Edison power plant. In 1977, the reported controlling depth was 7 feet in the approach channel with 2½ feet along the docks. The channel is marked by private buoys. Gasoline, diesel fuel, water, electricity, launch ramps, pump-out facilities, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. The private marina also has marine supplies and outboard motor repairs.

(77) There is a hospital in Harbor Beach.

(78) From Harbor Beach NNW for 15 miles to Points aux Barques Light, the shore is low and wooded with bluffs from close up to 1 mile from shore. An extensive flat with rock ledges and detached bare and submerged rocks extends as much as 1.5 miles offshore. Off **Forest Bay,** from 2 to 3 miles N of Harbor Beach, several dangerous ledges with depths of 2 to 10 feet extend N and S, 1 to 1.5 miles offshore.

(79) **Port Hope, Mich.**, a small village about 7 miles N of Harbor Beach, has a dock in very poor condition and a small basin formed by breakwalls. The approach and the basin have less than 2 feet of water. A marina, with 1 foot reported alongside in 1977, is just S of the basin and provides water. Port Hope Chimney, a free-standing stone and brick stack on the beach, is a State monument. This stack and the spire in the village are prominent. Good holding ground is found E and N of Port Hope, in depths of 35 to 40 feet.

(80) **Points aux Barques Light** (44°01.4'N., 82°47.6'W.), 93 feet above the water, is shown from a white conical tower with an attached dwelling on a point 15 miles NNW of Harbor Beach.

(81) A dangerous reef, with rocks covered less than 6 feet near its outer edge, extends 2 miles E from Points aux Barques Light. A 5-foot spot is 1.2 miles NE of the light, and boulders, covered 13 to 15 feet, extend up to 2.5 miles N and NE from the light. A lighted buoy marks the extent of the reefs NE of the light.

Chart 14863

(82) From Points aux Barques Light to **Points aux Barques** (44°04.1'N., 82°57.9'W.), 9 miles NW, the shore continues low and wooded. Ledges and detached rocky spots render the stretch dangerous within 3 miles of shore. **Orion Rock,** covered 3 feet, is about 0.8 mile offshore 3 miles NW of Points aux Barques Light.

(83) **Grindstone City, Mich.**, a small settlement 5.5 miles NW of Points aux Barques Light, has a small-craft harbor formed by two jetties. A privately dredged channel, marked by private buoys, leads along the NW side of the SE jetty, thence angles W between projections on the inner sides of the jetties to a harbor basin. In 1977, the reported controlling depth was 4 feet in the approach, entrance channel, and basin. However, it was reported that sudden atmospheric pressure or wind changes may change the water level in the harbor by as much as 1 foot. The harbor should not be entered without local knowledge. Gasoline is available in the harbor.

(84) In June 1983, a sunken wreck was reported about 1.2 miles E of the harbor in about 44°03'24"N., 82°51'50"W.

(85) At **Burnt Cabin Point,** 2 miles E of Points aux Barques, a rocky ledge extends off about 0.8 mile around the point. **Alaska Bay,** a small bight between Burnt Cabin Point and Points aux Barques, has good water to within about 0.4 mile of its head. **Port Austin Reef** is a dangerous reef extending 1.7 miles NW from Points aux Barques. **Port Austin Reef Light** is near the

outer edge of the reef. The light should not be passed close aboard even by vessels of shallow draft because of riprap and other obstructions that extend out 900 feet from the base. A detached 11-foot shoal, marked on the N side by a buoy, is 0.9 mile NNW of the light. Vessels should not pass inside the buoy.

(86) From Points aux Barques the shore extends SW to Port Austin with rocky flats extending about 0.5 mile offshore.

(87) **Port Austin, Mich.**, is a village and small-craft harbor at the mouth of **Bird Creek** about 2 miles SW of Points aux Barques on the shore of a shallow bay between that point and **Flat Rock Point** (44°02.7'N., 83°01.6'W.). A church spire just E of town and a radio mast on high ground 1.5 miles S of the harbor are prominent.

Channels

(88) A dredged entrance channel leads S from deep water in Lake Huron to a harbor basin protected by a breakwater on the W and NW sides and a detached breakwater on the NE side. The outer ends of both breakwaters are marked by lights. In June 2004, the controlling depths were 10.2 feet (11.1 feet at midchannel) in the entrance channel to the basin, thence depths of 8 to 10 feet were available in the N half of the basin and 3 to 6 feet in the S half of the basin (except for shoaling to 1.4 feet in the S corner.) A depth of 5 feet could be carried to the W pier at the mouth of Bird Creek by favoring the NW and W edges of the basin.

(89) The entrance should be approached from the N or NW to avoid the reef area NE of the harbor. A buoy 0.4 mile N of the NE breakwater light marks the NW extent of the reef. Buoys mark the E and SE limits of the dredged basin. The harbor affords limited protection from all winds.

(90) Bird Creek enters the harbor at the S end of the basin. The W side of the mouth of the creek is protected by a pier that extends about 450 feet N. The entrance to the creek had a reported midchannel controlling depth of 4½ feet in 1992. About 350 feet up the creek, at the first bend, extensive shoaling was reported along the E side in 1990; mariners are advised to favor the far W side when transiting this bend in the creek.

(91) W of the creek mouth, the Michigan State Waterways Commission has dredged a basin and provided docking facilities for small craft. The basin has been dredged to 6 feet, mostly from solid rock, leaving a hazardous abrupt shoal border along its limits. The W and S limits of the basin are marked by private buoys.

Small-craft facilities

(92) A marina developed by the Michigan State Waterways Commission is in the harbor basin. Transient berths, gasoline, water, electricity, launch ramp, sewage pump-out, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. Marinas in Bird Creek also provide diesel, gasoline, water, ice, electricity, and marine supplies. A 40-ton hoist is available for hull, engine, and electrical repairs.

(93) **Saginaw Bay**, the largest indentation on the W side of Lake Huron, is 26 miles wide at its entrance between Points aux Barques to SE and **Au Sable Point** (44°20.0'N., 83°20.4'W.) to NW. The bay extends about 52 miles SW to its head at the mouth of the Saginaw River. At about its midpoint, the bay is constricted to a width of about 13 miles between Sand Point (43°54.8'N., 83°24.0'W.) to SE and Point Lookout (44°03.0'N., 83°34.8'W.) to NW.

(94) The mouth of the bay is wide and open with good depths, but the deepwater channel leading to the upper part of the bay is restricted to a width of about 1.8 miles between a shoal that extends SE from Point Lookout and a very shallow bank that extends as much as 14 miles from the E shore of the bay. S of Point Lookout, the bay widens to as much as 22 miles. A deepwater channel up to 7 miles wide, with depths of 24 feet or more, extends to within 8 miles of the head of the bay. A dredged channel extends through the shallower water at the head of the bay to the mouth of the Saginaw River.

Fluctuations of water level

(95) The water level in Saginaw Bay is subject to sudden changes due to the wind. A NE gale driving water into the bay can raise the level at the mouth of Saginaw River 3 to 4 feet, sometimes in less than as many hours, while a SW wind sometimes lowers the level sufficiently to cause large vessels to ground in the channel.

Caution

(96) The course across the mouth of Saginaw Bay is dangerous in heavy weather. Tawas Bay, on the W side of the mouth, has good anchorage with protection from all but SW winds.

(97) Numerous charted and uncharted fish net stakes and structures, some submerged, are in Saginaw Bay.

(98) From Port Austin, the E shore of Saginaw Bay trends generally SW for 22 miles to **Sand Point.** From **Flat Rock Point,** 1.5 miles W of Port Austin, the shore consists of low bluffs for 3 miles SSW to the mouth of **Pinnebog River,** thence 3 miles W to **Hat Point.** The bluffs become wooded from Hat Point W for about 8 miles to **Oak Point** (43°58.5'N., 83°15.7'W.). At Oak Point the shore turns SW for 2 miles to Caseville

Harbor, thence SW and W for 7 miles to the extremity of Sand Point.

(99) Between Flat Rock Point and Oak Point, shoals extend as much as 5 miles N from the shoreline. **Flat Rock Point Reef,** with a least depth of 2 feet, is W of Flat Rock Point with its S end about 1.7 miles NW of the mouth of Pinnebog River and thence extending 1 mile N. **Hat Point Reef,** with a least depth of 2 feet near its outer end, extends 2 miles N from shore, just E of Hat Point. Detached 20- and 21-foot spots are 4 miles N and 5.2 miles NW of Hat Point, respectively. Midway between Hat Point and Oak Point, depths of 7 feet and 1 foot are 1.5 and 0.9 miles offshore, respectively. A detached 12-foot spot is 2 miles NW of Oak Point.

(100) From Sand Point, a shoal bank extends about 13 miles NW. **Little Charity Island** and **Charity Island** are on the bank about 7 and 8 miles NW of Sand Point, respectively. Between the point and the islands, the bottom is generally sandy with scattered boulders. Depths of 7 feet are available across the shoal, but the prevailing depths are less. Charity Island, low and wooded, is marked at the NW end by an abandoned lighthouse. From the island, the shoal bank extends about 3½ miles W and 4 miles N. Numerous spots with depths of 13 to 20 feet are from 3 to 5 miles NE of the island. A lighted bell buoy, about 5.5 miles NW of Charity Island, marks the NW extent of the shoal bank.

(101) Entering Saginaw Bay, a course S from the lighted bell buoy leads 6.5 miles through deep water to abreast Gravelly Shoal Light, which marks the shoals off Point Lookout at the narrowest point of the deepwater channel into the bay. A 17-foot spot, marked on the W side by a lighted buoy, is 3.6 miles WNW of Charity Island and close E of the course between the lighted bell buoy marking Charity Island Shoal and Gravelly Shoal Light.

(102) **Caseville Harbor, Mich.**, is at the mouth of the **Pigeon River,** about 18 miles SW of Points aux Barques and 6.5 miles ENE of Sand Point. A white spire in the town is prominent.

Channels

(103) A dredged entrance channel leads from deep water in Saginaw Bay to the mouth of Pigeon River and thence upstream for 0.3 mile. A breakwater extends bayward from the mouth of the river on the N side of the entrance channel. The outer end of the breakwater is marked by a light and the channel is marked by buoys and a private **113.5°** lighted range. In August 2006, the controlling depth was 5 feet in the entrance and through the mouth of the river to the head of the project (except for shoaling to 2.9 feet along the S edge of the channel near Buoy 4.)

(104) A **slow-no wake speed** is enforced in the harbor.

Small-craft facilities

(105) A Michigan State Waterways Commission marina and private marinas are in the harbor. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launching ramp, boat hoist, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9.

(106) **Sand Point** (43°54.8'N., 83°24.0'W.) is a narrow point extending 4 miles W from about midpoint of the E shore of Saginaw Bay. Canals and approach channels have been privately dredged at the W end and along the S side of the point. Dockage for small craft is available in the canals, but the channels are subject to shoaling and caution is advised.

(107) From Sand Point SW for 28 miles to the mouth of the Quanicassee River, the southernmost point of Saginaw Bay, the shore is generally low and marshy. The shore then trends NW for 10 miles to the mouth of the Saginaw River. Above Sand Point, the E side of the bay is a sandy flat extending 8 to 10 miles offshore within the 18-foot contour. The bottom is irregular, with depths less than 10 feet scattered over the entire area.

(108) **Wild Fowl Bay** is enclosed by Sand Point on the N and by **North Island,** 2.3 miles SW of Sand Point, and **Wild Fowl Point** on the S. The bay has central depths of 6 feet or more, with much lesser depths toward shore.

(109) On the SE side of Wild Fowl Bay, a channel locally known as Wallace Cut leads to a marina basin. The entrance is marked by a private lighted range. In April 1999, the entrance channel had a reported controlling depth of 5 feet with 8 to 10 feet in the basin. The marina provides berths, gasoline, water, ice, electricity, sewage pump-out, marine supplies, engine repairs, a 30-ton hoist and a launching ramp.

(110) **Bay Port Harbor, Mich.**, is on the S shore of Wild Fowl Bay just E of Wild Fowl Point and about 25 miles SW of Points aux Barques. Commercial fishermen use the harbor. A launching ramp is available.

Channels

(111) A dredged entrance channel leads S from deep water in Wild Fowl Bay to join privately maintained channels. In September 2003, the controlling depth was 2.3 feet in the dredged channel.

(112) From Wild Fowl Point SW for 11.5 miles to **Fish Point** (43°43.1'N., 83°31.5'W.), a shoal bank with depths less than 6 feet extends about 3.5 miles offshore. This bank has numerous islands, the largest of which are **Heisterman Island,** 1 mile S of North Island, and **Middle Grounds Island** and **Maisou Island,** just S of Heisterman Island.

(113) **Sebewaing Harbor** is at the mouth of the Sebewaing River, on the E shore of Saginaw Bay about 12 miles S of Sand Point. A stack on the N side of the river in the village of **Sebewaing, Mich.**, is prominent.

Channels

(114) A dredged entrance channel leads SE from deep water in Saginaw Bay through the mouth of the Sebewaing River and upstream to about 800 feet below the CSX railroad bridge. In October 2006, the controlling depth was 2.5 feet in the entrance channel to the head of the project. Depths of about 3 feet were available, with local knowledge, for another 0.75 mile, thence the river shoals to bare.

Bridge

(115) A fixed railroad bridge with a clearance of 9 feet crosses the river at the village.

(116) A **slow-no wake speed** is enforced on the Sebewaing River and connecting channels and canals.

(117) From Fish Point SW to the Quanicassee River, depths less than 6 feet extend about 1 mile offshore. A marina about 8.5 miles SW of Sebewaing provides transient berths, gasoline, ice, water, electricity, sewage pump-out, and a launching ramp. A 25-ton hoist is available for minor engine repairs.

(118) **Quanicassee River**, flowing into the SE corner of Saginaw Bay, is practically closed by the bars at its mouth. Depths less than 6 feet extend 2 miles off the mouth. W of the river mouth, the 6-foot contour extends 5 miles offshore and then narrows to about 1 mile at the mouth of Saginaw River. The entrance to Quanicassee River is marked by private seasonal buoys.

Charts 14863, 14867

(119) The **Saginaw River** is formed by the confluence of the Tittabawassee and Shiawassee Rivers at **Green Point** (43°23.1'N., 83°58.2'W.) at the S limit of the city of Saginaw. The river flows N for 22 miles and empties into the head of Saginaw Bay. The lower 18 miles of the river form a commercial harbor. Grain, chemicals, petroleum products, limestone, coal, sand, gravel, and cement are the major commodities handled at the ports of **Bay City, Mich.,** just above the river mouth, and **Saginaw, Mich.,** 19 miles above the river mouth. Other towns on the river are **Essexville, Mich.,** on the E side just above the mouth, and **Zilwaukee, Mich.,** and **Carrollton, Mich.,** on the W side just below Saginaw.

Prominent features

(120) Two 500-foot stacks at the powerplants on the E side of the river mouth and a TV mast at Essexville are prominent.

Channels

(121) A Federal project provides for a dredged entrance channel leading SW from the deep water in Saginaw Bay for about 13.5 miles to the mouth of the Saginaw River and thence upstream for about 20 miles to the ports of Bay City and Saginaw. The entrance and river channels are well marked by lighted and unlighted buoys. A **211°20'** lighted range marks the entrance channel, and a **160°** lighted range marks a reach in the lower part of the river.

(122) The Federal project depths are 27 feet in the entrance channel to the mouth of the river, thence 26 feet through the mouth, thence 25 feet to the Grand Trunk Western Railroad bridge at Bay City, thence 27 feet to the CSX railroad bridge in Saginaw, thence 16½ feet to the Holland Avenue bridge in Saginaw. Five turning basins in the river have project depths as follows: 25 feet at Essexville, 22 feet in Bay City opposite the airport, 20 feet at Carrollton, 20 feet just below the CSX railroad bridge at Sixth Street in Saginaw, 15 feet between the Grand Trunk Western Railroad bridge and the Holland Avenue bridge at Carroll Street in Saginaw. (See Notice to Mariners and latest editions of charts for controlling depths.)

(123) A **slow-no wake speed** is enforced in the Saginaw River.

(124) Above the Holland Avenue bridge in Saginaw depths in the river vary from 7 to 15 feet for about 2.8 miles to Green Point.

(125) In 1977, it was reported that the **Tittabawassee River** was navigable by small boats for only about 1.5 miles above Green Point. Above that point stumps, sunken logs, and snags severely obstruct the river.

(126) The **Shiawassee River,** near Green Point, has an available depth of 5 to 6 feet, and the crooked channel across Shiawassee Flats is 15 or 16 feet deep in many places. In 1977, numerous submerged pilings were reported at the mouth of the river in the vicinity of Green Point. Above the flats, the Shiawassee River is very narrow and crooked, but is navigable for small boats to the junction with **Bad River,** and thence the Bad River to the village of St. Charles, 13 miles from Green Point. A highway bridge with a 19-foot fixed span and a clearance of 8½ feet crosses Shiawassee River about 6.7 miles above the mouth.

Structures across the Saginaw River and Tributary
***Miles above Saginaw Bay Channel Range Front Light**
****Clear width in feet proceeding upstream**

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
	Main Channel							
1	Overhead cable	Power	0.55				181	
2	Overhead cable	Power	0.93				125	
3	Lake State RR bridge	Railroad	3.10	96	94		7	Swing. Note 1.
4	Independence bridge	Highway	3.88			150	22	Bascule. 30 feet at center.
5	Canadian National RR bridge	Railroad	4.94	101	101		8	Swing. Notes 1 and 2.
6	Liberty Street bridge	Highway	4.99			150	25	Bascule. Note 1.
7	Veterans Memorial Bridge	Highway	5.60			146	15	Bascule. 23 feet at center. Note 1.
8	Overhead cable	Power	5.79				135	
	Junction with West Channel		6.40					
9	Lafayette St. bridge	Highway	6.78			150	20	Bascule. Note 1.
10	Cass Ave. bridge	Highway	7.78					Bridge removed. Piers remain.
11	Overhead cable	Power	12.97				142	
12	Overhead cable	Power	14.40				138	
13	Overhead cable	Power	14.52				136	
14	I–75 High level bridge	Highway	14.61			300	121	Fixed.
15	Overhead cable	Power	14.77				130	
16	CSX RR bridge	Railroad	18.00			150	13	Bascule. Notes 1 and 3.
17	Overhead cable	Power	18.03				124	
18	Route I–675 bridge	Highway	18.38			138	34	Fixed.
19	Johnson St. bridge	Highway	18.52			100	25	Fixed.
20	Genesee Ave bridge	Highway	18.65			88	25	Fixed.
21	Canadian National RR bridge	Railroad	19.20	70	70		12	Swing. Notes 1 and 3.
23	Holland Ave bridge	Highway	19.67			113	20	Fixed.
24	Court St. bridge	Highway	20.34			107	32	Fixed.
25	Rust Ave. bridge	Highway	20.74	66	66		18	Fixed.
26	Overhead cables	Power	21.28				52	
27	Douglas G. Schenck Bridge	Highway	21.34			116	19	Fixed.
28	Overhead cable		22.28				30	
29	Overhead cable	Power	22.36				56	

Structures across the Saginaw River and Tributary
Miles above Saginaw Bay Channel Range Front Light
****Clear width in feet proceeding upstream***

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
	Tittabawassee River							
30	Overhead cable	Power	23.10				52	
31	Overhead cable		23.14				30	
32	Consumers bridge	Highway				58	25	Fixed.
	West Channel							
33	Overhead cable	Power	6.72				27	
34	Lafayette St. bridge	Highway	6.84			71	18	Fixed.
35	Overhead cable	Power	7.26				32	
36	Overhead cable	Power	7.89				18	
37	Cass Ave. bridge	Highway	7.90					Bridge removed. Center pier remains.
38	Overhead cable	Power	7.91				18	

Note 1.–See **33 CFR 117.1 through 117.59 and 117.647**, chapter 2, for drawbridge regulations.

Note 2.–The bridge will not have a tender on duty and will be left in an open position from 0300 to 1100 Tuesday through Friday and from 0300 Saturday to 1100 Monday except for one special closing usually between 1200 and 1600. A bridgetender will be on duty at all other times and proper whistle signals should be sounded to have the bridge opened for passage.

Note 3.–Maintained in the closed position. See **33 CFR 117.647(c) and (d),** chapter 2, for drawbridge regulations.

(127) The **Cass River** and **Flint River,** tributaries of the Shiawassee, are navigable by rowboats to a limited extent, being greatly obstructed by sunken logs and snags.

(128) An irregularly shaped diked disposal area is on the E side of the entrance channel to the Saginaw River about 1 mile NE of the mouth.

(129) The former dredged approach to the Saginaw River leads N from the mouth to deep water in Saginaw Bay. The channel, with a least depth of about 13, is unmarked and no longer maintained.

Fluctuations of water level

(130) Each year the normal variation in level between the highest and lowest mean monthly stages in the Saginaw River is about 3 feet. In addition, spring floods and excessive rains may cause an abnormal rise of as much as 14 feet in the river at Saginaw. Occasionally a considerable change takes place within a few hours, resulting from the raising or lowering of Saginaw Bay by violent NE or SW winds. Water level information for the river may be obtained by contacting Saginaw Coast Guard Station on VHF-FM channel 16. Water levels are given in whole inches above or below chart datum.

Towage

(131) A 4,000 hp tug, GREGORY J. BUSCH, is also available at Bay City. Arrangements are made through Busch Marine Services, at 517-754-2507 or 517-751-3847, or by contacting the tug on VHF-FM channel 16. Working channels include 16, 6, 10, 12, 13, 21, and 22. Two hours advance notice is requested; however, the tug is manned 24 hours a day. The tug operates on all lakes and meets vessels at any location including midlake. The tug is equipped with radar and loran and operates under any conditions. Open water rescue towing between Port Huron and De Tour Passage is available, and the tug has ice breaking capabilities. Tugs are also available from Great Lakes Towing Co. docks in Detroit, at 800-321-3663. At least 30 hours advance notice is requested.

(132) Saginaw-Bay City is a **customs port of entry.**

Quarantine, customs, immigration, and agricultural quarantine

(133) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(134) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Coast Guard Station

(135) **Saginaw River Coast Guard Station** is on the E side of the river about 1.7 miles above the mouth.

Wharves

(136) The Saginaw River has numerous facilities along both sides for 18 miles above the mouth. Only the deep-draft facilities are described. (For a complete description of the port facilities, refer to Port Series No. 45, published and sold by the U.S. Army Corps of Engineers. See Appendix A for address.) The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operator.) All the facilities described have highway connections, and many have railway connections. Some of the facilities have water and electrical shore-power connections.

Facilities on the E side of the river at Essexville and Bay City:

(137) **Consumers Energy Co. Dock:** E side of river mouth; 2,664-foot face; 18 feet alongside; deck height, 7 feet; open storage for 350,000 tons of coal; receipt of coal; owned and operated by Consumers Energy Co.

(138) **ESSROC Cement Corp:** 2 miles above the river mouth; 850 feet of berthing space; 22 to 25 feet alongside; deck height, 7 feet; open storage for 30,000 tons closed storage 50,000 tons, and silo storage for 75,000 tons of cement; receipt of cement clinker and limestone; owned by Italcementi Group and operated by ESSROC Cement Corp.

(139) **Carrollton Paving Corp., Essexville Dock:** just above ESSROC Cement Corp.; 800-foot face; 18 to 20 feet alongside; deck height, 7 feet; open storage for 100,000 tons; receipt of stone; owned by Carrollton Concrete Mix Corp., and operated by Carrollton Paving Corp.

(140) **Sand and Stone Dock:** 0.5 mile above ESSROC Cement Corp.; 1,400-feet of berthing space along stone-revetted natural bank; 15 to 25 feet alongside; bank height, 3 feet; covered storage for 95,000 tons of potash; about 3.8 acres open storage for about 70,000 tons of limestone; receipt of miscellaneous dry bulk commodities; owned by Jack Wirt and operated by Sand and Stone, Inc. and Saginaw Bay Fertilizer Inc.

(141) **Liquifuels Inc. Wharf:** 0.15 mile below Detroit and Mackinac Railway bridge; 170 feet of berthing space with dolphins; 20 feet alongside; deck height, 8 feet; tank storage for 183,000 barrels; receipt of petroleum products; owned and operated by Liquifuels Inc.

(142) **Bay Aggregate, Dock**: 0.2 mile above Veterans Memorial Bridge; 980-foot face; 15 to 20 feet alongside face; deck height, 4 to 6 feet; open storage for 200,000 tons; receipt of stone, and sand rock; owned by Port Fisher, LLC and operated by Bay Aggregate Inc.

(143) **Bay Aggregate, I.B. Industrial Park Wharf:** 0.3 mile above Veterans Memorial Bridge; 1,320 feet of total berthing space with dolphins along bulkhead and concrete-revetted natural bank, 1,320-foot face; 10 to 12 feet alongside; bank height, 7 feet, deck height, 5 feet; open storage for 200,000 tons of stone; receipt of stone; owned by Port Fisher, LLC and operated by Bay Aggregate Inc.

(144) **Saginaw Valley Marine Terminal Wharf:** about 1.1 miles above Lafayette Street bridge; 550 feet of berthing space; 17 to 22 feet alongside; deck height, 5 feet; 24,000 square feet covered storage; 4 acres open storage; occasional receipt and shipment of conventional general cargo; owned and operated by Saginaw Valley Marine Terminal and Warehouse Inc.

Facilities on the W side of the river at Bay City:

(145) **Dow Chemicals USA Lower Wharf:** 0.3 mile below Detroit and Mackinac Railway bridge; 1,000 feet of berthing space; 23 to 25 feet alongside; deck height, 6 feet; pipelines extend to tank storage, capacity 16 million gallons; shipment of Liquidow; owned and operated by Dow Chemicals USA.

(146) **Marathon Ashland Petroleum LLC:** 0.35 mile above Detroit and Mackinac Railway bridge; offshore wharf, 370 feet of berthing space with dolphins; 20 to 23 feet alongside; deck height, 6 feet; pipelines extend to tank storage, capacity 850,000 barrels; receipt and shipment of petroleum products; owned and operated by Marathon Ashland Petroleum LLC.

(147) **Wirt Transport Co., Bay City Stone Dock:** immediately above Independence Bridge; 2,500 feet of berthing space along revetted natural bank; 15 feet alongside; deck height, 3 to 6 feet; 13 acres of open storage; receipt of limestone, slag, sand and stone; owned and operated by Wirt Transport Co.

Facilities on the E side of the river at Saginaw:

(148) **Saginaw Asphalt Paving Co., Buena Vista Dock:** 0.25 mile above Route I-75 bridge; 1,050 feet of berthing space with dolphins along natural bank; 22 feet alongside; deck height, 6 feet; 14 acres open storage, with a capacity for 100,000 tons of stone; receipt of miscellaneous dry bulk commodities, including stone, sand, and salt; owned and operated by Saginaw Asphalt Paving Co.

(149) **Bay Dock Co., Wirt Saginaw Stone Wharf:** 0.5 mile above Route I-75 bridge; 1,800 feet of berthing space; 16 to 22 feet alongside; deck height, 4 feet; 28 acres open storage; covered storage for 18,000 tons of potash; receipt of stone, sand, salt, potash, and coal; owned by Alice Wirt and operated by Bay Dock Co. Inc.

(150) **International Materials Inc. Dock:** 0.2 mile above Lafarge Corp., 1,500-foot face; 20 to 22 feet alongside; deck height, 2 to 4 feet; 13 acres open storage; receipt of stone, sand, sand, coal, and slag; owned and operated by International Materials, Inc.

(151) **Saginaw Rock Products Co. Dock**: 0.4 mile below CSX railroad bridge; 1,200 feet of berthing space; 10 to 20 feet alongside; deck height, 6 feet; 8 acres of open storage for 220,000 tons of coal and 780,000 tons of stone; receipt of miscellaneous dry bulk commodities, including stone and coal; owned by Saginaw Rock Products Co. and City of Saginaw and operated by Saginaw Rock Products Co.

Facilities on the W side of the river at Zilwaukee, Carrollton, and Saginaw:

(152) **Edw. C. Levy Co. Dock:** 1.1 miles below Route I-75 bridge; 1,100-foot face; 20 to 23 feet alongside; deck height, 7 feet; 10 acres open storage; receipt of stone; owned by Edw. C. Levy Co. and operated by Burroughs Material Corp.

(153) **Sargent Dock and Terminal Co., Inc.:** 0.1 mile below Route I-75 bridge; 1,100 feet of berthing space; 20 feet alongside; 40,000-ton covered storage; 650,000 ton open storage; receipt of sand, aggregate, gypsum, potash, salt and stone; owned operated by Sargent Docks and Terminal Co., Inc.

(154) **ADM/Countrymark, Inc.:** 1.1 miles above Route I-75 bridge; 556 feet of berthing space with dolphins; 20 feet alongside; deck height, 6 feet; grain elevator, capacity over 2½ million bushels; grain gallery with one vessel-loading spout, loading rate 30,000 bushels per hour; shipment of grain; owned and operated by ADM/Countrymark, Inc.

(155) **Lafarge Corp., Sixth Street Dock:** (43°27'19"N., 83°55'37"W.); 545-foot face; 20 feet alongside; deck height, 10 feet; storage silos for 8,300 tons of cement; receipt of bulk cement; owned and operated by Lafarge Corp., Great Lakes Region.

(156) **Peavey Co., Carrollton Elevator Wharf:** (43°27'13"N., 83°55'51"W.); 700 feet of berthing space with dolphin; 20 feet alongside; deck height, 4 feet; 3-million-bushel grain elevator; vessel-loading spout; shipment of grain; owned and operated by Peavey Co., a division of ConAgra Co.

(157) **Saginaw Asphalt Paving Co., Carrollton Dock:** (43°27'09"N., 83°55'58"W.); 924 feet of berthing space along bulkhead and revetted natural bank; 20 feet alongside; deck heights, 6 and 11 feet; 10 acres open storage; receipt of miscellaneous dry bulk commodities, including stone, sand, coal, and salt; owned and operated by Saginaw Asphalt Paving Co.

(158) **Valley Asphalt Co. Dock:** 0.2 mile below CSX railroad bridge; 1,200-foot face; 15 to 20 feet alongside; deck height, 8 feet; open storage for 100,000 tons of stone; receipt of stone; owned and operated by Valley Asphalt Co.

(159) **Carrollton Concrete Mix Dock:** 0.2 immediately below the CSX railroad bridge, 850 feet of berthing space along rock-revetted natural bank; 10 to 20 feet alongside; bank height, 8 feet; one crawler crane; open storage for 100,000 tons of stone; receipt of stone; owned and operated by Carrollton Concrete Mix Inc.

Supplies

(160) Marine supplies and provisions are available at firms in Bay City and Saginaw. Water is available at some wharves.

Repairs

(161) Above-the-waterline repairs, some engine repairs, and a 100-ton marine railway are available at a marine contractor at the S end of Middle Ground, about 8 miles above the river mouth in Bay City.

Small-craft facilities

(162) Marinas are on the W side of the river 1.6 miles above the mouth, just N of the Grand Trunk Western Railroad Bridge, on the E side opposite Middle Ground, and at Saginaw 1.5 miles below Green Point. A Michigan State Waterways Commission marina is in the harbor. Transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, launch ramp, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. Hoists to 50 tons are available for hull and engine repairs.

Communications

(163) Bay City and Saginaw have good highway and rail freight connections. Passenger and freight service are available at the Tri-City Airport, 12 miles SW of the river mouth.

Chart 14863

(164) From the mouth of the Saginaw River the W shore of Saginaw Bay extends 3 miles NW, thence NNW about 7 miles to **Nayanquing Point,** thence N about 11 miles to the mouth of the **Saganing River,** thence NNE about 5 miles to **Wigwam Bay,** thence E about 9 miles to Point Au Gres, and thence N and E for about 8 miles to Point Lookout. The shoreline in this reach is generally low and marshy with numerous cottages. The 18-foot contour extends from 5 miles N of the Saginaw River mouth NW to 3 miles E of Nayanquing Point and thence NE to Point Lookout, passing 1 mile off Point

Au Gres. The flat inside the 18-foot contour is sandy and stony and generally shelving, with depths of 12 feet or less within 1 mile of that contour and depths of less than 7 feet extending over 1 mile off most of the shoreline. Off the mouths of some of the rivers in this reach, very shallow bars project well out over the flat.

Charts 14863, 14867

(165) The **Kawkawlin River,** emptying into Saginaw Bay about 2 miles NW of the mouth of the Saginaw River, is entered by a dredged channel that leads just inside the mouth. In September 1998, the controlling depth was 2½ feet (4½ feet midchannel) to the mouth of the river. Continually changing conditions have been reported at the mouth and the approach channel is marked by buoys that are shifted to mark the best water. An overhead power cable with a clearance of 51 feet crosses the river about 0.3 mile above the entrance. In September 1989, bridge ruins were reported about 0.7 mile above the entrance. A fixed highway bridge 0.2 mile further upstream has a reported clearance of 10 feet. A **slow-no wake speed** is enforced on the river.

Chart 14863

(166) The **Pinconning River** is about 5.5 miles N of Nayanquing Point. Two water tanks in the village of **Pinconning, Mich.,** about 2.5 miles W of the mouth of the river, are prominent. A marina on the S side of the river mouth provides gasoline, ice, and a launching ramp. In May 2000, it was reported that the approach to the marina was bare, due to the extremely low water level of Lake Huron.

(167) **Pinconning Bar**, extending about 3 miles E from the mouth of the Pinconning River, and **Saganing Bar,** extending about 3.5 miles E from the mouth of the Saganing River, are very shallow banks with about 2 feet near their outer ends.

(168) Off the **Rifle River,** about 3.5 miles W of Point Au Gres, **Rifle Bar,** a shoal area with 1 or 2 feet of water, extends SE about 3 miles, with the 18-foot contour about 0.5 mile farther out. The Rifle River is navigable by canoes for about 10 miles above the village of Omer, Mich.

(169) **Point Au Gres** is on the W side of Saginaw Bay about 25 miles NNE of the mouth of Saginaw River. The bottom is quite shallow and rocky to 1 mile off around the point, with 30 feet close outside of this limit. A buoy marks a submerged obstruction just off the end of the point.

(170) Close NW of Point Au Gres, a 30-foot-wide canal provides refuge for small craft. In May 2000, the reported centerline controlling depth in the canal was 3 feet. The entrance to the canal is marked by private buoys. Gasoline and water are available in the canal.

(171) Between Point Au Gres and Point Lookout, 6.5 miles NE, a shallow bight has depths less than 18 feet extending 2 miles from its head. **Au Gres River** empties into the head of the bight.

(172) **Point Lookout Harbor** is a harbor of refuge at the mouth of the Au Gres River about 2 miles S of the city of **Au Gres, Mich.**

Channels

(173) A dredged entrance channel leads NW from deep water in Saginaw Bay between parallel piers to the mouth of the river and thence upstream for about 2 miles to U.S. Route 23 highway bridge. The approach channel is marked by buoys and the outer ends of the piers by lights. In June 2004, the controlling depths were 6.8 feet in the entrance and between the piers to about 0.8 mile above the outer ends of the piers; thence in September 2006, 2.8 feet to the head of the project at the bridge.

Bridges

(174) Two overhead power cables with a minimum clearance of 68 feet cross the river 2.3 miles above the outer ends of the piers. The U.S. Route 23 highway bridge, about 0.5 mile upstream, has a fixed span with a horizontal clearance of 15 feet on either side of the center pier and a vertical clearance of 8 feet.

(175) A **slow-no wake speed** is enforced on the Au Gres River.

Small-craft facilities

(176) A marina on the S side of the river mouth and a Michigan State Waterways Commission facility just below the Route 23 bridge provide transient berths, gasoline, diesel fuel, water, electricity, marine supplies, sewage pump-out, launching ramp, and harbormaster services. The harbormaster monitors VHF-FM channels 16 and 9. Minor repairs are available at the marina. In 1977, depths of 2 to 5 feet were reported alongside the marina berths.

(177) At **Point Lookout** (44°03.0'N., 83°34.8'W.), also known as **Gravelly Point,** a shoal with depths of 5 to 18 feet extends SE for 3 miles. **Gravelly Shoal Light** (44°01.12"N., 83°32.18"W.), 75 feet above the water, is shown from a white square tower on a cylindrical base near the outer end of the shoal; a fog signal is at the light. This shoal is important because it restricts the available deep water between it and the Charity Islands for vessels making the Saginaw River. Vessels should not pass between the light and the point. Protection

from N and W winds with holding ground in 20 to 30 feet, mud bottom, is close S of Point Lookout, but fish net stakes obstruct this area.

(178) From Point Lookout to **Tawas Point** (44°15.1'N., 83°27.4'W.), 15 miles NNE, the shoreline is bordered by shoals extending 0.5 to 1.2 miles off. A 2-foot shoal is 0.6 mile SE of **Whitestone Point,** 4.5 miles N of Point Lookout. About 10 miles N of Point Lookout, shoals with depths of 4 to 7 feet extend 1 mile off. The shore in this reach is low from Point Lookout to Whitestone Point, thence bluff to Tawas City, and becomes low again to Tawas Point.

(179) At **Alabaster, Mich.,** 9.5 miles N of Point Lookout, the United States Gypsum Co. operates an offshore wharf for loading crushed gypsum. A 6,800-foot aerial tramway connects the 310-foot wharf and the shore. The tramway cable, supported by eight towers, has a minimum clearance of 30 feet. The wharf has a deck height of 9 feet, and in May 2000, had a reported depth of 23 feet alongside. The approach to the wharf is marked by a private **270°** lighted range on the outer end of the wharf and on a crib off the end of the wharf. The wharf is an open roadstead with protection from only W winds. Small craft should keep clear of the wharf and from under the tramway because of the danger from falling rocks.

(180) At **Port Gypsum,** 3.5 miles N of Alabaster, a 1,078-foot conveyor system connects the shore and a 650- by 80-foot offshore gypsum-loading wharf of the National Gypsum Co. The wharf has a deck height of 9 feet, and in May 2000, had a reported depth of 22 feet alongside. There is open storage for 60,000 tons of gypsum. A privately dredged channel, marked by private buoys and a **293°30'** lighted range, leads from deep water in Saginaw Bay to a turning basin at the wharf. In May 2000, the reported controlling depth was 20 feet in the channel and basin.

(181) **Tawas Bay** is a bight about 4 miles wide, enclosed on the E by Tawas Point and on the N and W by the curving mainland. It is an excellent harbor, affording secure anchorage at its head in all but SW winds. The 18-foot contour is about 1.3 miles off the NW shore of the bay decreasing to 0.5 mile off the N shore. Inside this contour, the depths shoal gradually toward shore. On the E side of the bay, a sand flat with depths of 1 foot extends 0.4 mile SW and about 0.7 mile W from Tawas Point. At the NW limit of the flat, marked by a buoy, the depths increase rapidly to 20 feet or more. A lighted buoy off the SW limit of the flat marks the entrance to Tawas Bay.

(182) **Tawas Light** (44°15.2'N., 83°26.9'W.), 70 feet above the water, is shown from a white conical tower with attached dwelling on Tawas Point; a fog signal is 0.6 mile SW of the light. The light has a **045°–135°** red sector which covers the sand flat on the W side of the point.

(183) To anchor in Tawas Bay, vessels should round the lighted buoy SW of Tawas Point, and from a point about 800 feet W of the buoy, head **000°** until Tawas Light bears **112½°**; thence change course to about **060°**. Anchor about 1 mile **315°** from Tawas Light in about 22 feet of water with sand and clay bottom.

Dangers

(184) A submerged object about 2 feet below the surface of the water was reported in 44°13'48.0"N., 83°28'36.0"W., about 1,416 yards SSW of Point Lighted Buoy 2.

(185) **Tawas City, Mich.**, is on the NW side of Tawas Bay at the mouth of the **Tawas River.** A water tank in the city is prominent. In May 2000, the reported controlling depth across the bar at the river mouth was 2 feet. A private **326°** lighted range marks the entrance to the river. A **slow-no wake speed** is enforced on the Tawas River. There are limited facilities for small craft in the lower part of the river.

(186) **East Tawas, Mich.**, is on the N shore of Tawas Bay about 2 miles NE of Tawas City. The Michigan State Waterways Commission dock provides transient berths, gasoline, diesel fuel, water, electricity, sewage pump-out, launch ramp, and harbormaster services. The harbormaster monitors VHF-FM channels 16 and 9. The northeasternmost arm of the dock has reported depths of 12 feet alongside. The dock is protected by a breakwater extension that should not be approached closely because of stone riprap. The breakwater extension is marked at the NE end by a light.

(187) A dredged channel leads N around the end of the breakwater to a triangular shaped basin off the end of the Michigan State Waterways Commission dock. In June 2004, the controlling depth was 11.2 feet in the entrance channel to the basin with depths of 9 to 10 feet in the basin.

Coast Guard Station

(188) **Tawas Coast Guard Station** is on Tawas Point 0.7 mile NE of Tawas Light.

(189) A marina on the W side of the inner end of Tawas Point provides transient berths, gasoline, water, ice, electricity, sewage pump-out, marine supplies, and a launching ramp. A 15-ton lift is available for hull and engine repairs. The entrance to the marina is marked by private daybeacons and a private **128°** lighted range. In May 2000, the reported controlling depths were 5 feet in the entrance channel and basin. A yacht club

Structures across Au Sable River
***Miles above North Pierhead Light**
****Clear width in feet proceeding upstream**

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
1	U.S. Route 23 bridge	Highway	0.42			77	23	Fixed.
2	Overhead cable	Power	0.44				44	
3	Overhead cable	Television	0.58				28	
4	Overhead cable		0.64				24	
5	Overhead cable		1.06				28	
6	Overhead cable	Telephone	1.08				28	
7	Mill St. bridge	Highway	1.09	45	45	48	12	Fixed. Center span is navigable.
8	Adams Ave bridge	Highway	1.76			35	9	Fixed.
9	Lake State Railway bridge	Railroad	2.76					Fixed. Data not available.
10	Wurtsmith bridge	Highway	6.46			33	13	Fixed.

basin marked by a private **165°** lighted range is just SW of the marina.

(190) From Tawas Point to **Au Sable Point** (44°20.0'N., 83°20.4'W.), about 8 miles NE, shoals and submerged net stakes extend about 1.3 miles offshore. Shoals with depths to 14 feet extend off the same distance around Au Sable Point. A lighted buoy is 2.7 miles ESE of the point.

(191) From Au Sable Point N for 5 miles to the mouth of Au Sable River, the shore is low with no prominent landmarks. Along this stretch, shoals with depths of 9 to 15 feet extend as much as 2.1 miles offshore. In September 1987, a sunken wreck was reported about 1.7 miles eastward of Au Sable Point.

(192) **Au Sable Harbor**, also known as **Oscoda**, is a harbor of refuge used mainly by pleasure craft at the mouth of the **Au Sable River**. The towns of **Au Sable, Mich.,** and **Oscoda, Mich.**, front the W and E sides of the river, respectively. A prominent black water tank is 1.2 miles NW of the mouth of the river; the tank is lighted.

Channels

(193) A dredged entrance channel enters the river from Lake Huron between parallel piers and leads upstream for about 0.2 mile to the U.S. Route 23 highway bridge. The outer ends of the piers are marked by lights; a fog signal is at the N light. In August 2005, the controlling depths were 5.4 feet in the entrance channel to the boat ramp on the S side of the channel, thence 3.8 feet to the bridge.

(194) Depths of about 2 to 3 feet can be carried for about 1 mile above the dredged channel.

(195) In July 1987, a sunken wreck was reported just N of the entrance channel in about 44°24'27"N., 83°18'53"W.

Currents

(196) There is normally only a slight current through Au Sable Harbor, but strong currents prevail in the harbor when the dam a short distance above the harbor is being used for power generation.

(197) A **slow-no wake speed** is enforced on the Au Sable River.

Small-craft facilities

(198) Marinas above the Route 23 bridge provide transient berths, gasoline, diesel fuel, water, ice, electricity, sewage pump-out, marine supplies, and a launching ramp.

Charts 14863, 14864

(199) From the mouth of Au Sable River to Sturgeon Point, 21 miles N, shoals with depths less than 18 feet, and with numerous rocky patches of 12 to 16 feet near the outer limits, extend as much as 2.7 miles offshore. Deep-draft vessels should give this stretch a berth of 3 miles. The outermost danger is a boulder, covered 16 feet, 10.5 miles NNE of Au Sable River mouth. The shore in this reach is low for about 13 miles N of Au Sable to just N of the village of **Greenbush, Mich.,** where

high bluffs begin a short distance back from shore and continue N past Sturgeon Point.

Caution

(200) A special use airspace, bounded by the following coordinates,

(201) 45°17'00"N., 83°00'00"W.;

(202) 45°20'24"N., 82°31'18"W.;

(203) 44°31'00"N., 82°19'54"W.;

(204) 44°27'42"N., 82°47'08"W.,

(205) is used periodically for air to air gunnery practice from the surface to an altitude of 45,000 feet from sunrise to sunset. The using agency is the Commander, Permanent Field Training Site Detachment, Phelps-Collins ANGB, Alpena, Mich., and the controlling agency is Minneapolis ARTC Center, Federal Aviation Administration.

Chart 14864

(206) **Harrisville Harbor**, about 17 miles N of the Au Sable River, serves the town of **Harrisville, Mich.,** and affords the only safe refuge for light-draft vessels between Au Sable and Alpena, Mich. The harbor provides adequate protection from all winds, but NE storms cause large swells in the harbor. A silver water tank on high ground about 0.7 mile W of the harbor is prominent.

Channels

(207) A dredged entrance channel leads SW from Lake Huron between two breakwaters to a harbor basin. The outer ends of the breakwaters are marked by lights.

(208) In October 2004, the controlling depths were 3.3 feet in the right half and 8.6 feet in the left half of the entrance channel to the basin, thence depths of 9 to 10 feet were available in the N part of the basin except for lesser depths along the N and W edges. The remainder of the basin is maintained by private interests.

Small-craft facilities

(209) A public dock in the SW part of the harbor, operated by the Michigan State Waterways Commission and the city of Harrisville, provides transient berths, gasoline, diesel fuel, water, electricity, pump-out, launching ramp, and harbormaster services. The harbormaster monitors VHF-FM channels 16 and 9. Minor engine repairs are available nearby.

(210) **Sturgeon Point**, marked by a light, is 26 miles N of Au Sable Point and 3.8 miles N of Harrisville Harbor. A shoal with a depth of 8 feet near its outer end extends 1.5 miles NE from the point.

(211) From Sturgeon Point, the shoreline trends N for 12 miles to South Point, the S entrance point to Thunder Bay. This stretch should be given a berth of 3 miles to avoid numerous submerged rocks inshore, and off-lying shoals with depths of 12 to 20 feet. The outermost shoal, 5 miles N of Sturgeon Point, extends 2.5 miles offshore. Off the mouth of **Black River,** 4.5 miles S of South Point, foul ground with submerged rocks and depths less than 8 feet extends 1.4 miles E and 2 miles NE, beyond **Black River Island.** Two sunken wrecks and a reported obstruction are about 2.5 miles E of the river mouth.

(212) **Thunder Bay** is a large bight on the W side of Lake Huron; the mouth of the bay is 10 miles wide between **North Point** and **South Point. Thunder Bay Traffic Lighted Bell Buoy,** 3 miles S of North Point, marks the entrance to the bay. The bay provides shelter in all but SE weather with good holding ground generally near the shores. The N shore from North Point to **Whitefish Point** provides a good lee in NE gales with good holding ground close to shore in depths of 25 to 30 feet, clay and sand bottom. Submerged net stakes and two wrecks obstruct this area.

(213) The S part of Thunder Bay, from South Point WNW to **Devils River,** is filled with shoals and submerged rocks extending 2.5 miles offshore. **Scarecrow Island,** 2 miles N of South Point, is near the outer edge of the shoal area.

(214) The **Thunder Bay National Marine Sanctuary and Underwater Preserve** has been established to protect and preserve a nationally significant collection of approximately 160 shipwrecks, spanning over a century of Great Lakes shipping and maritime history. The sanctuary encompasses 448 square miles of northwest Lake Huron and includes Thunder Bay. (See **15 CFR 922**, chapter 2 for limits and regulations.)

(215) **Ossineke**, on the SW side of Thunder Bay, is just above the mouth of Devils River. The mouth of the river is partially protected by a breakwater. In September 1981, the controlling depth in the river was reported to be less than 4 feet; the river is subject to shoaling and should not be entered without local knowledge. A pier about 1,000 feet inside the mouth can provide fuel for small craft.

(216) From about 1 mile N of Devils River N to the vicinity of Sulfur Island, depths of 17 feet are within 0.5 mile of shore. A sandy flat with depths less than 12 feet connects the mainland and **Sulphur Island**, off the mouth of **Squaw Bay**. A rocky ledge with a depth of 1 foot near its outer end extends about 1 mile N from Sulphur Island to abreast **Partridge Point**, the N entrance point to Squaw Bay. Detached shoals with depths of 6 to 11 feet are 1 mile E and 1.5 miles SE of Sulphur Island. From Partridge Point N for 3.5 miles to the mouth of

Thunder Bay River, numerous detached shoals extend 2 miles offshore. A 4-foot spot and an 8-foot spot are 1.5 and 2.5 miles NNE of Partridge Point, respectively. Numerous submerged net stakes are in deep water within 2 miles NE and E of Partridge Point.

(217) A marina in a basin on the N side at the inner end of Partridge Point provides gasoline, diesel fuel, water, ice, electricity, sewage pump-out, and a launching ramp. A 50-ton mobile lift is available. The entrance is protected by jetties. The outer end of the S jetty is marked by a private light. In 2000 it was reported that the water levels were too low to operate the marina and it was in need of major repair. A buoy reportedly marks a reef 200 yards NE of the entrance.

(218) N of the marina, between Partridge Point and **Bare Point,** the bay is very shallow and foul.

(219) **Isaacson Bay** is a shallow bight about 2 miles E of the mouth of Thunder Bay River. From Whitefish Point, on the E side of Isaacson Bay, SE for 5 miles to North Point, there is deep water within 1 mile of shore. However, this reach has numerous submerged net stakes and several obstructions. A wreck covered 21 feet and a 22-foot spot are 1.7 and 2.9 miles S of Whitefish Point, respectively. An obstruction, with unknown depth over it, is about 1.9 miles SSW of the point. A shoal with a least depth of 5 feet near its outer end extends 1.5 miles SE from North Point. The outer end of the shoal is marked by a buoy.

(220) **Alpena Harbor**, serving the city of **Alpena, Mich.,** is on the NW shore of Thunder Bay at the mouth of **Thunder Bay River.** Commerce at the port is mainly salt, coal, gasoline, and bulk cement. Prominent are stacks, tanks, and a spire in town, and stacks at the cement plant E of town.

(221) **Alpena Light** (45°03.6'N., 83°25.4'W.), 44 feet above the water, is shown from a red skeleton tower, upper part enclosed, on a crib on the N side of the river mouth. A fog signal is at the light. Because of protective riprap, the light should not be passed close aboard even by vessels of shallow draft.

Channels

(222) A dredged entrance channel, marked by buoys, leads NW from deep water in Thunder Bay through the mouth of Thunder Bay River to a turning basin 0.7 mile above the mouth. The channel enters the river on the N side of a pier that extends from the S side of the mouth. In June 2004, the controlling depths were 20 feet in the entrance to Lighted Buoy TB, thence 13.9 feet (15.5 feet at midchannel) to the Second Avenue bridge; thence in October 2002, 13.7 feet to the turning basin with 13 to 15 feet available in the basin, thence 10.5 feet just past the turning basin at the head of the project.

(223) From near the outer end of the dredged entrance channel, about 1.5 miles SE of the river mouth, a privately dredged channel extends 1.3 miles NNW to a basin at the Lafarge Corp. The channel is marked by a private **344°** lighted range and by private buoys placed 50 feet outside the channel limits. In 2002, the channel and basin had a reported controlling depth of 22 feet.

(224) About 0.6 mile SE of the river mouth, another privately dredged channel extends 0.6 mile N to the W facility of Lafarge Corp. The channel is marked by a private **358°** lighted range. In 2002, the reported controlling depth in the channel was 22 feet.

Bridges

(225) The Second Avenue highway bridge crossing the river 0.4 mile above the mouth has a bascule span with a clearance of 12 feet. (See **33 CFR 117.1 through 117.59 and 117.655**, chapter 2, for drawbridge regulations.) An overhead cable 0.8 mile above the river mouth has a clearance of 29 feet. The Ninth Avenue fixed highway bridge 1 mile above the mouth has a clearance of 12 feet.

Fluctuations of water level

(226) The annual range of fluctuation in Thunder Bay River is about 3½ feet. Day-to-day variations caused by wind and barometric pressure changes may amount to more than 1 foot. Strong N or S winds will occasionally cause considerable change within a few hours.

Weather, Alpena and vicinity

(227) Alpena, MI, located on the southwest shore of Lake Huron and in the northeastern part of the state, is at the head of Thunder Bay. Thunder Bay opens on Lake Huron in a southeasterly direction. The location averages about six days each year with maximum temperatures in excess of 90°F (32.2°C). July is the warmest month with an average high of 80°F (26.7°C) and an average minimum of 54°F (12.2°C). January is the coolest month with an average high of 27°F (-2.8°C) and an average minimum of 9°F (-12.8°C). The highest temperature on record for Alpena is 103°F (39.4°C) recorded in June 1995 and the lowest temperature on record is -37°F (-38.3°C) recorded in February 1979. About 177 days each year experience temperatures below 32°F (0°C) and an average 35 days each year records temperatures below 5°F (-15°C). Every month has seen temperatures below 35°F (1.7°C) and every month except July (extreme minimum of 34°F (1.1°C) recorded in July 1965) has recorded temperatures below freezing (0°C).

(228) The average annual precipitation for Alpena is 28.75 inches (730 mm) which is fairly evenly distributed throughout the year. Precipitation falls on about

231 days each year. The wettest month is August with 3.45 inches (88 mm) and the driest, February, averages only 1.24 inches (31.5 mm). An average of 30 thunderstorm days occur each year with July and August being the most likely months. Snow falls on about 116 days each year and averages about 86 inches (2184 mm) each year. January averages nearly 22 inches (559 mm) per year and December, nearly 20 inches (508 mm). Fifteen inch (381 mm) snowfalls in a 24-hour period have occurred in each month November, December, January, and March. About 18 days each year has a snowfall total greater than 1.5 inches (38 mm) and snow has fallen in every month except June, July, and August. Fog is present on average 158 days each year and is rather evenly distributed throughout the year with a slight minimum during the winter season and a slight maximum during August.

(229) The prevailing wind direction in Alpena is the west-northwest. Late winter through spring is the windiest period but a maximum gust of 52 knots occurred in August 1988.

(230) (See Page 540 for **Alpena climatological table.**)

(231) Alpena is a **customs station.**

Quarantine, customs, immigration, and agricultural quarantine

(232) (See chapter 3, Vessel Arrival Inspections, and appendix for addresses.)

(233) **Quarantine** is enforced in accordance with the regulations of the U.S. Public Health Service. (See Public Health Service, chapter 1.)

Harbor Regulations

(234) A **slow-no wake speed** is enforced in Alpena Harbor. The Chief of Police, who acts as **harbormaster,** enforces the harbor regulations. Copies of the regulations may be obtained from Chief of Police, Public Safety Building, E. Chisholm St., Alpena, Mich. 49707.

Towage

(235) Tugs are available from Sault Ste. Marie. (See Towage under Sault Ste. Marie.)

Wharves

(236) Alpena has three active deep-draft facilities. The alongside depths for the facilities described are reported depths. (For information on the latest depths, contact the operators.)

(237) **Lafarge Corp. Wharf:** in basin 1 mile ENE of the mouth of Thunder Bay River; 1,000-foot wharf on E side of basin; two 500-foot wharves at N end of basin; 23 feet alongside; deck heights, 7 feet; open storage for 350,000 tons of coal; silo storage for 200,000 tons of cement; loading spouts at E wharf, maximum rate 6,000 tons per hour; receipt of coal, shipment of bulk cement; owned and operated by Lafarge Corp.

(238) **Louisiana-Pacific Corp. Wharf:** N side of mouth of Thunder Bay River; vessels usually lay in channel and tie up to bollards along 300-foot face; 16 to 22 feet alongside; open storage for 40,000 tons of coal; receipt of coal; owned and operated by Louisiana-Pacific Corp.

(239) **Alpena Oil Co. Wharf:** S side of mouth of Thunder Bay River; about 700-foot face; 17 feet alongside; deck height, 3½ feet; open storage for 25,000 tons of salt; pipeline connection at dock; receipt of salt and gasoline; owned and operated by Alpena Oil Co.

Small-craft facilities

(240) A marina developed by the Michigan State Waterways Commission is entered from the S side of the main channel at the mouth of Thunder Bay River. The entrance is marked by private lights. In February 2002, the reported controlling depth was 9 feet in the entrance and the basin. Gasoline, berths, diesel fuel, water, electricity, sewage pump-out facilities, marine supplies, launching ramp, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. A 25-ton hoist is available for hull and engine repairs.

Charts 14864, 14869

(241) From North Point, the broken shoreline, low and wooded, stretches generally NNW for 25 miles to Presque Isle. This stretch has numerous off-lying islands and detached shoals.

(242) **Thunder Bay Island**, 3 miles ENE of North Point, is the outermost of a group of islands connected to shore by a shallow bank with numerous rocks, submerged and awash. **Thunder Bay Island Light** (45°02.2'N., 83°11.7'W.), 63 feet above the water, is shown from a white conical tower with attached dwelling on the SE shore of the island. A shoal with depths of 2 feet extends 0.2 mile SE from the island. Deep-draft vessels should not pass inside Thunder Bay Island. The E side of the island is deep-to. A wreck, covered 43 feet, is 13.6 miles ESE of Thunder Bay Island Light.

(243) **Sugar Island**, just W of Thunder Bay Island, is 2 miles NE of North Point. **Gull Island** is just N of Sugar Island. The passage between Sugar Island and North Point should only be used by small craft with local knowledge, because a rocky ledge makes out from the N side of the point almost to the island.

(244) Between Sugar Island and Thunder Bay Island is a small area of shelter from NW, NE, and E winds with good holding ground in 6 to 10 feet. Entrance to this area is from S; it is unsafe to enter from N because

of a shoal and small islet between the NW end of Thunder Bay Island and Gull Island. The holding ground S of Sugar Island and SW of Thunder Bay Island is not good, rock and stone bottom.

(245) **Misery Bay** is a bight between the N side of North Point and **Potter Point** (45°05.6'N., 83°18.2'W.), 3 miles NNW. The bay is extremely shoal and filled with rocks and islands.

(246) From Potter Point NNW for 7 miles to abreast Middle Island, the shoreline is irregular and shallow water extends generally less than 0.7 mile offshore. A boulder, covered 13 feet, is about 1 mile E of Potter Point. Submerged net stakes are 1 to 2 miles offshore. **Stonycroft Point**, 1 mile N of Potter Point, is marked by a private light. Three piers and a launching ramp are on the S side of the point.

(247) A large boulder bank with least depths of 22 to 24 feet is from 3 to 7.7 miles NE of Potter Point. The shoal is in the path of through traffic and is a danger to deep-draft vessels, especially during heavy weather. A visible wreck is near the NE extremity of the bank. A submerged wreck is about 100 feet E of the visible wreck. A lighted buoy with a racon 0.2 mile ESE of the wreck marks the NE extremity of the bank.

(248) **Middle Island** is about 1.5 miles offshore about 6.5 miles N of Potter Point. Middle Island Light (45°11.6'N., 83°19.3'W.), 78 feet above the water, is shown from a white conical tower, orange bands in middle, with detached dwelling on the E side of the island. The island is surrounded on all but the NE side by flats with depths less than 6 feet that extend about 0.2 mile off. A 5-foot shoal is about midway between the island and the mainland, and there are other patches with depths 9 to 12 feet. Passage through this area is not recommended without local knowledge. A small ledge with rocks that uncover is 0.6 mile SE of Middle Island. A lighted buoy is off the E side of the ledge and marks the E extent of the shallows surrounding Middle Island.

(249) There is anchorage SW of Middle Island with protection from S through W to NE winds in fair holding ground, clay and boulder bottom. NW of the island there is protection from SE winds in good holding ground, mud and sand bottom. When using these anchorages, give the island sufficient berth to avoid the surrounding flats.

(250) **Rockport, Mich.**, about 2.4 miles WNW of Middle Island, is a small private harbor used primarily by sport fishermen. A small point of land protects the harbor on the E. The submerged remains of a former sand and gravel breakwater extend 500 feet N from the point. The area is very shoal and should be avoided. The pier and detached cribs of a former limestone loading dock are in the harbor. The inner crib is marked by a private light. The outer crib is in ruins and submerged. A basin SE of the pier has a natural launching ramp.

(251) **False Presque Isle Harbor**, 3 miles N of Rockport, is a secure harbor protected on the N by **False Presque Isle** (45°16.0'N., 83°24.0'W.), a nearly detached body of land that projects E from shore. The harbor provides protection from SW through N to NE winds with fair anchorage in depths of 20 to 30 feet. The S side of the harbor is bordered by shoals with depths of 7 to 10 feet that extend 1.2 miles offshore. An 18-foot shoal is 0.9 mile SE of False Presque Isle in the center of the harbor approach. A boulder, covered 15 feet, is 0.5 mile SE of the 18-foot shoal.

(252) From False Presque Isle, the shoreline extends NW for about 6 miles to Presque Isle. Along this stretch deep water is within 0.4 mile of shore except in the shallow bight on the NW side of **South Albany Point** (45°19.1'N., 83°27.2'W.).

(253) **Stoneport, Mich.**, about 2 miles NW of False Presque Isle, is a private harbor operated by the Lafarge Corp. for the shipment of limestone. An L-shaped breakwater extends from shore 1,000 feet NE, thence 1,200 feet SE. A 928-foot dock with a deck height of 12 feet is along the inner side of the SE arm of the breakwater. The facility has open storage for 60,000 tons of limestone, and a conveyor system can load vessels at 5,500 tons per hour. In 2002, the reported controlling depth alongside was 23.5 feet. **Stoneport Light** (45°17'48"N., 83°25'06"W.), 55 feet above the water, is a seasonal, private aid shown from a white cylindrical structure on the outer end of the dock. Private buoys mark the SW limit of the deep water in the dock area. A buoy about 0.8 mile SE of Stoneport Light marks the harbor approach.

(254) **Presque Isle**, about 25 miles NNW of North Point, is a peninsula almost completely detached from the mainland. **Presque Isle Light** (45°21.4'N., 83°29.5'W.), 123 feet above the water, is shown from a white conical tower with attached dwelling on the N end of Presque Isle. The light marks the turning point for vessels bound for the Straits of Mackinac. The tower of an abandoned lighthouse is on the S end of Presque Isle.

(255) **Presque Isle Harbor**, entered between Presque Isle on the N and **North Albany Point** on the S, is a safe but limited harbor and anchorage for small craft. The entrance to the harbor is marked by a **274°** lighted range. A bar across the entrance limits the draft of vessels entering the harbor, but vessels can carry a depth of about 10 feet on the range line. Inside the bar, the harbor has central depths of 13 to 18 feet.

(256) The range should be followed closely when entering the harbor. Shoals extend N off North Albany Point, and a shoal with depths of 5 feet at its outer end

extends 0.6 mile E from the S end of Presque Isle. A lighted bell buoy is off the SE side of the 5-foot shoal.

(257) To anchor in Presque Isle Harbor, enter on the lighted range, and when the abandoned lighthouse on Presque Isle bears NNE, haul up a short distance N or S of the range line and anchor. In 2002, shoaling to 5 feet was reported on the range line about 1,200 feet E of the front light.

Small-craft facilities

(258) A marina developed by the Michigan State Waterways Commission is on the N side of Presque Isle Harbor. The entrance to the marina is marked by private buoys and lights. Gasoline, diesel fuel, water, electricity, sewage pump-out facilities, launching ramp and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9.

(259) **North Bay**, the indentation formed on the W side of Presque Isle, provides anchorage with shelter from E and S winds, but the bottom is rock. Enter the bay on a course of **157½°** using Presque Isle Harbor Range Rear Light, which shows across North Bay, as a guide. The bay has central depths of about 20 feet. The E shore should be given a berth of 0.3 mile and the W shore 0.25 mile. A 14-foot shoal extends from the W shore to near the middle of the bay.

Charts 14864, 14880

(260) The trend of the shoreline from Presque Isle is WNW for 12 miles to **Adams Point** (45°24.9'N., 83°43.0'W.), thence W for 4.7 miles to Rogers City, and thence NW for 6.6 miles to Forty Mile Point (45°29.2'N., 83°54.8'W.).

(261) **Black Point**, 2 miles W of Presque Isle, has deep water within 0.25 mile. About 2 miles ESE of Adams Point, a detached 17-foot shoal is 1.2 miles offshore. As foul ground extends from shore to within 0.4 mile of this shoal, coasting vessels should take care to pass outside the detached shoal. From Adams Point to Forty Mile Point, deep water is generally within 0.5 mile of shore.

(262) **Calcite, Mich.**, 3.3 miles W of Adams Point, is a private harbor owned and operated by Michigan Limestone Operations for shipping limestone. The harbor is protected on the NW and N by a point and breakwater and to the SE by **Quarry Point.** The harbor affords no shelter from N to E winds except for small craft, which can enter the tug basin on an emergency only basis.

(263) **Calcite Light**, a private 8-foot-diameter neon light at the inner end of the loading slip in Calcite, is prominent.

Channels

(264) A privately dredged entrance channel leads from deep water in Lake Huron SW for 0.3 mile. At the inner end of the channel, a loading slip extends SW and a dredged area along the dock face extends SE. A dredged tug basin protected by a breakwater arm is on the NW side of the entrance channel. The harbor approach is marked by a light on the outer end of the breakwater which protects the harbor; a fog signal is at the light. The channel is marked by two private lighted ranges. A **236°** range of red lights for incoming vessels marks an alinement along the S side of the channel. A range of green lights for outbound vessels leads **056°** at about midchannel. In March 2002, the reported controlling depth was 24 feet in the entrance channel and loading slip except for shoaling to 16 feet at the SW end of the slip, thence depths of 10 to 20 feet in the dredged area along the SE dock face except for shoaling to 6 feet at the SE end of the area. In 2002, reported depths of 11 to 22 feet were available in the tug basin with shoaling to 7 feet along the extreme NW edge.

Fluctuations of water level

(265) The harbor is subject to fluctuations of water level, and vessels drawing over 17 feet should obtain information from the harbor tugs before entering the harbor. Depth information and harbor blueprints can be obtained at the dock office on the S side of the loading slip. A water gage on the SW corner of the tug basin, lighted at night, shows the maximum depth to which vessels may be loaded and should be checked by vessel masters.

Towage

(266) Tugs are available from the Great Lakes Towing Co. docks in Sault Ste. Marie, at 800-321-3663.

Wharves

(267) The wharves on the N and S sides of the loading slip have lengths of 938 and 866 feet, respectively, with deck heights of 8 feet. There is open storage for over 200,000 tons of limestone. Conveyor systems can load vessels at 5,000 and 3,000 tons per hour at the N and S wharves, respectively.

(268) **Rogers City, Mich.**, is 4.6 miles W of Adams Point and 6.6 miles SE of Forty Mile Point. It is a center for the mining, processing, and transportation of limestone. The port is an open roadstead with no natural harbor, but two artificial basins provide protection for small craft. A silver water tank about 0.6 mile SW of the municipal basin is prominent.

(269) An entrance channel marked by private, seasonal buoys leads SW from deep water in Lake Huron to the municipal small-craft basin, which is formed by

breakwaters and entered at the SE corner. The basin entrance is marked on either side by private lights. In April 2001, the entrance channel and basin had a reported depth of 8 feet. On the NW side of the municipal basin, commercial fishermen use a small basin formed by breakwaters. The entrance to the basin, from NE, has depths of 3 feet and is difficult in severe storms.

(270) Rogers City is a **customs station.**

(271) Transient berths, gasoline, diesel fuel, water, electricity, sewage pump-out, launching ramp, and harbormaster services are available in the municipal basin, which was developed by the Michigan State Waterways Commission. The harbormaster monitors VHF-FM channels 16 and 9.

Charts 14864, 14880, 14881

(272) **Forty Mile Point** is a rounding projection 6.6 miles NW of Rogers City and about 29 miles ESE of Cheboygan. **Forty Mile Point Light** (45°29.2'N., 83°54.8'W.), 66 feet above the water, is shown from a square white brick tower on a dwelling on the point.

Charts 14880, 14881

(273) The NW part of Lake Huron forms the approach to, and the E part of, the **Straits of Mackinac.** At its extreme NW end, the lake narrows abruptly to a width of 4 miles between **Old Mackinac Point** and **Point St. Ignace,** the narrowest part of the Straits of Mackinac. The NW end of the lake is obstructed by shoals, Reynolds Reef and Spectacle Reef near midlake and Martin Reef off the N shore, and by several islands, Bois Blanc Island the largest. The two main shipping channels through this area lead N and S of Bois Blanc Island.

(274) From Forty Mile Point, the shoreline trends W for 6 miles to the E point of Hammond Bay. A 15-foot spot is 0.7 mile offshore 1.2 miles NW of Forty Mile Point Light. Along the rest of the stretch, deep water is within 0.5 mile of shore. At the E point of Hammond Bay a 10-foot shoal extends 0.5 mile NW.

(275) **Hammond Bay**, an open bight 8.5 miles W of Forty Mile Point, provides shelter in winds from SE through S to NW. Shoals and numerous submerged net stakes extend 1 mile offshore around the bay. Fair anchorage is in the S part of the bay off the mouth of **Ocqueoc River.**

(276) Rocky ledges extend as much as 0.8 mile offshore from Hammond Bay NW for 7 miles to **Ninemile Point,** thence 6 miles WNW to Cordwood Point.

(277) **Hammond Bay Harbor** is a harbor of refuge about 3 miles NW of Hammond Bay and 4 miles SE of Ninemile Point. The harbor basin, protected by two detached breakwaters, is entered through a dredged channel from the NW. In May 2004, the controlling depth was 7.6 feet in the entrance channel, thence depths of 9 to 10 feet were available in the basin (except for lesser depths to 7 feet in the SW corner.) A mooring area maintained by the State of Michigan on the S side of the basin had a controlling depth of 3 feet in 2001 (except for shoaling to 1 foot in the SW corner.)

(278) Transient berths, gasoline, water, electricity, sewage pump-out facilities, a launching ramp, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. No other services are available because of the isolated location of the harbor.

(279) At **Cordwood Point** (45°39.8'N., 84°20.0'W.), a lighted buoy marks the outer end of a reef with depths of 20 to 24 feet that extends 1.8 miles NE. During stormy weather with heavy seas, the reef is a danger to vessels transiting South Channel of the Straits of Mackinac.

(280) The **Straits of Mackinac, South Channel** passes between the lower peninsula mainland shore and the S side of Bois Blanc Island. The E entrance is between Cordwood Point and Poe Reef, which is the SE extremity of a shoal area off the SE shore of Bois Blanc Island.

(281) South Channel is a **regulated navigation area.** (See **33 CFR 165.1 through 165.13, and 165.901 (a) and (c),** chapter 2, for limits and regulations.)

(282) Between Cordwood Point and **Cheboygan Point,** 4.5 miles W, the shore is low except that a high bluff is within 1 mile of the shoreline in the E part of the reach. A lighted mast on the bluff, 1.2 miles SW of Cordwood Point, is prominent. The shoreline in this reach should be given a berth of 1 mile. A shoal with a depth of 13 feet at its outer end extends 0.8 mile NE from Cheyboygan Point.

(283) **Duncan Bay** indents the shoreline between Cheboygan Point and the mouth of the Cheboygan River, 2 miles SW. Shoals extend 0.6 mile off around Cheboygan Point and on the E side of Duncan Bay, leaving a narrow navigable channel leading SE from South Channel into Duncan Bay. Pilings from former lumber docks project from shore into the W side of Duncan Bay.

(284) Several shoals border the S side of South Channel in the approach to the Cheboygan River. **Fourteen Foot Shoal**, 0.9 mile NW of Cheboygan Point, is a hard gravel ledge with depths of 16 to 19 feet. **Fourteen Foot Shoal Light** (45°40.8'N., 84°26.1'W.), 51 feet above the water, is shown from a white conical tower on a square structure in the center of the shoal; a fog signal is at the light. Because of protective riprap, the light structure should not be passed close aboard even by shallow-draft

vessels. A buoy is on the NW edge of the shoal. A shoal with a depth of 19 feet at its outer end extends 2.2 miles N from the mouth of Cheboygan River and is marked by a buoy 1.9 miles NW of Cheboygan Point. The shoal has depths of 22 to 30 feet that extend 1.5 miles NW from the buoy and 1.5 miles offshore.

Small-craft facilities

(285) A small-craft channel, marked by lights, lighted and unlighted buoys, leads to a boat basin and marina on the W side of Duncan Bay. The channel has reported depths of 8 feet and the marina provides berths, electricity, pump-out, water, ice and monitors VHF channels.

(286) Aside from the above shoals, the shoreline is clear from the Cheboygan River NW for 15 miles to Mackinaw City, with deep water no more than 0.7 mile offshore.

(287) **Poe Reef**, with a least depth of 17 feet, is a detached shoal on the N side of South Channel, 2.7 miles SE of Bois Blanc Island with shoals between. **Poe Reef Light** (45°41.7'N., 84°21.7'W.), 71 feet above the water, is shown from a white and black horizontally banded square tower on a concrete crib on Poe Reef. A fog signal and racon are at the light. Because of protective riprap, the light structure should not be passed close aboard even by shallow-draft vessels. A buoy marks the S side of Poe Reef.

(288) **Bois Blanc Island**, forming the N side of South Channel, is a wooded island 11.5 miles long with a maximum width of 6 miles. Shoal water with depths of about 7 to 24 feet extends from the SE side of the island almost to Poe Reef. Shoals extend about 0.7 mile off the S side of the island. A 15-foot spot is 0.7 mile SSW of **Packard Point** (45°43.3'N., 84°25.2'W.). A Michigan State Waterways Commission facility is behind a breakwater on the S side of the island midway between Packard Point and **Points aux Pins.** The outer end of the breakwater is marked by a private light. Water and electricity are available.

(289) **Zela Shoal**, with depths of 6 feet near its outer end and rocks awash near its midpoint, extends about 2 miles WNW from **Zela Point,** on the SW side of Bois Blanc Island 3 miles NW of Points aux Pins. The outer end of the shoal is marked by a buoy. The remainder of the SW shore of Bois Blanc Island between Points aux Pins and **Lime Kiln Point** has deep water within 0.4 mile.

(290) Because of the shoals off Cordwood Point and Cheboygan Point, the recommended course through South Channel is from a point 0.6 mile NNE of the lighted buoy marking the shoals off Cordwood Point **270°** to a point 2,200 feet S of Poe Reef Light, thence **281°** to the lighted midchannel buoy 1.9 miles SSE of Points aux Pins, leaving the buoy to port, thence **302°** to the turning point 0.5 mile E of the center of the main towers of Mackinac Bridge, with Old Mackinac Point abandoned lighthouse bearing **198°.**

Charts 14880, 14881, 14886

(291) **Cheboygan Harbor**, serving the city of **Cheboygan, Mich.,** is 2.5 miles SW of Cheboygan Point in the lower part of the **Cheboygan River.** The harbor is a base for commercial fishermen and pleasure craft. The principal commodities handled in the port are petroleum products and coal.

Prominent features

(292) Three tanks and a stack in Cheboygan are prominent.

Channels

(293) The harbor is entered through a dredged entrance channel extending SW from deep water in the Straits of Mackinac South Channel to the mouth of Cheboygan River and thence upstream for about 1.6 miles. The entrance channel is marked by a buoy, a lighted buoy, a light, and a **212.5°** lighted range. A turning basin is on the SE side of the channel just inside the mouth of the river. In September 2004, the controlling depths were 17.9 feet (21 feet at midchannel) in the entrance and through the river mouth to the turning basin (except for shoaling to 10.3 feet along the NW edge of the channel near Light 4 and to 14.5 feet along the NW edge of the channel opposite the turning basin), thence 21 feet in the turning basin with lesser depths to 18.4 feet along the SE edge, thence 14.3 feet to just below the State Street bridge; thence in May 2003-September 2004, 5 feet to the lock at the head of the project.

Fluctuations of water level

(294) The annual fluctuation of the water level of the Cheboygan River is about 3 feet. Day-to-day level changes due to wind and barometric pressure sometimes are 1 foot or more. Occasionally a considerable oscillation may take place within 1 or 2 hours, amounting to 1½ feet or more.

Harbor Regulations

(295) The city of Cheboygan has established harbor regulations, which the **harbormaster** enforces. Copies of the regulations may be obtained from the City Manager. The harbormaster monitors VHF-FM channels 9 and 16. A **slow-no wake speed** is enforced.

Wharves

(296) Cheboygan has four deep-draft facilities. The alongside depths given for these facilities are reported depths. (For information on the latest depths, contact the operators.)

(297) **Northwood Oil Co. Dock:** W side of the river 0.65 mile above the mouth; 400-foot face; 21 feet alongside; deck height, 3 feet; pipelines extend to tank storage, capacity 33,500 barrels; receipt of gasoline and fuel oil; owned by G.E.F.S. Marine Terminal and operated by Northwood Oil Co.

(298) **G.E.F.S. Marine Terminal:** W side of the river immediately above Northwood Oil Co. Dock; two 300-foot sections; 21 feet alongside; deck height, 3 feet; open storage for 40,000 tons of coal; receipt of coal; owned and operated by G.E.F.S. Marine Terminal.

(299) **Amoco Oil Co. Wharf:** E side of the river 0.65 mile above the mouth; 290 feet of berthing space along dolphins; 21 feet alongside; deck height, 7½ feet; pipelines extend to tank storage, capacity 171,000 barrels; receipt of gasoline and fuel oil; owned and operated by Amoco Oil Co., Division of Standard Oil Co.

(300) **Aggregates Dock:** E side of the river above Amoco Oil Co. Wharf; deep-draft vessels lay in dredged channel and discharge by boom; 160,000 square feet open storage; receipt of aggregates; operated by various concerns.

Small-craft facilities

(301) The city of Cheboygan and the Michigan State Waterways Commission provide berthing space for small craft on the W side of the river just above the State Street bridge. The Cheboygan County Marina is on the W side of the river just inside the mouth. Transient dockage, gasoline, diesel fuel, water, electricity, sewage pump-out, and a launch ramp are available.

Ferry

(302) A U.S. Mail boat and ferry operates from the W side of Cheboygan River above the State Street bridge to the breakwater on the S side of Bois Blanc Island. The ferry operates from about April to December depending on ice conditions. The ferry carries passengers and cargo, and autos on a reservation only basis.

Lock

(303) At the upper end of the dredged channel, a lock connects Cheboygan Harbor and the Inland Route. The lock is 75 feet long and 18 feet wide with a lift of about 13½ feet. The depth over the lower miter sill is about 5 feet at Lake Huron stage of Low Water Datum, and the depth over the upper miter sill is about 8½ feet when the upper pool is level with the crest of the dam. The Michigan State Waterways Commission operates the lock and prescribes regulations and fees governing the use of the lock. The Waterways Commission maintains a small dock, about 50 feet long with a least depth of 5 feet alongside, immediately downstream of the lock entrance.

(304) Boaters proceeding upstream to use the lock are cautioned to anticipate water discharged at right angles to the stream at the powerhouse adjacent to the Charmin Paper Company. This current commences just after a bend in the river channel to the SE and is sufficient to force a boat proceeding at reduced speed into the opposite bank.

Michigan State Waterways Commission Cheboygan River Navigation Lock Regulations

(305) 1. When approaching the lock for passage, either upbound or downbound, boatmen shall signal the lock operator with one long and two short blasts of the vessel's horn, siren, or whistle.

(306) 2. Vessels shall not approach closer than 50 feet of the lock structure before signaling the lock operator and, upon signaling, shall maintain that distance until advised otherwise by the lock operator.

(307) 3. All tolls must be settled before passing the lock. The toll shall be assessed upon the length of the vessel as indicated on satisfactorily documented evidence produced by the vessel owner or captain.

(308) 4. All persons using or navigating the lock or canal will be held responsible for any damages they may cause to either, or to the works or structures at the entrance to the canal.

(309) 5. No boat, float, watercraft, vessel, or material of any kind will be allowed to be moored or to remain in the lock or canal, or to obstruct the entrance to either, without the permission of the Commission or for a longer time than may be allowed by it or its agents; and in case of any violation of this regulation, the Commission may, at its option, remove such obstruction and charge the owner with the expense of the removal and care thereof, which must be fully paid or settled before such boat, watercraft, or material shall be permitted to pass the lock.

Operation Schedule

(310) 1. From April 15, to and including Memorial Day, and from September 15, to and including October 31, the lock will be operated only between the hours of 9 a.m. and 5 p.m. on application at the Department of Natural Resources office located at 120 A Street, Cheboygan, MI; telephone, 616-627-9011 or 9841.

(311) 2. From the day after Memorial Day to and including June 14, and from the first Monday following Labor Day, to and including September 14, the lock will

be operated only between the hours of 9 a.m. and 5 p.m. on application to the lock operator.

(312) 3. From June 15, to and including the first Sunday following Labor Day, the lock will be operated only between the hours of 9 a.m. and 9 p.m. on application to the lock operator.

Chart 14886

(313) **Inland Route** is a series of connecting waters, comprising the Cheboygan River, Mullett Lake, Indian River, Burt Lake, Crooked River, and Crooked Lake, in all, about 36 miles long. The waterway extends from Cheboygan to Conway, Mich., about 2 miles inland from the head of Little Traverse Bay in Lake Michigan. The waterway also includes Pickerel Lake, which is connected by a short channel to Crooked Lake.

(314) The **Cheboygan River** is the outlet of Mullett Lake and other waters of the Inland Route, navigable by tugs, launches, and flat scows. **Cheboygan River Lock** separates the upper part of the river from the lower harbor. Above the lock, the Cheboygan River is generally wide and deep for 2.8 miles to its junction with the Black River. Above this junction, the river outside the channel is foul with stumps and snags for the remaining 2.5 miles to Mullett Lake. The channel above the junction is marked by daybeacons. In December 1993, the controlling depth was 3 feet from the mouth of the river to Mullett Lake, but greater depths were available with local knowledge. The channel S of the river's confluence with Mullett Lake to natural deeper water in Mullett Lake had depths of 3 feet in the E half and 4 feet in the W half.

(315) A **slow-no wake speed** is enforced on the Cheboygan River.

(316) The **Black River** extends SE from its junction with Cheboygan River for about 10 miles to **Black Lake.** The river is wide and deep for its lower 2.5 miles. Above this point, the foul ground along shore widens, and even shallow draft boats must use care to traverse the remaining 2.8 miles to **Alverno Dam.** A marine railway, maintained by the Consumers Power Co., provides access to the pool above the dam. The waters above the pool are uncharted, and rapids in the river make navigation hazardous.

Chart Datum, Inland Route

(317) Depths and vertical clearances under overhead cables and bridges are referred to Low Water Datum (LWD), which for Lake Huron is 175.8 feet (176.0 meters); for Mullet Lake is 592.5 feet (180.6 meters); for Burt Lake is 593.8 feet (181.0 meters); for Pickeral and Crooked Lakes is 595.4 feet (181.5 meters); for Lake Michigan is 577.5 feet (176.0 feet) and for the connecting rivers, it is the sloping surface of the river when the adjoining lakes are at LWD. All elevations are above mean water level at Rimouski, Quebec, on International Great Lakes Datum 1985 (IGLD 1985). (See Chart Datum, Great Lakes System, indexed as such, chapter 1.)

(318) A **slow-no wake speed** is enforced on the Black River.

(319) **Mullett Lake**, drained at its N end by the Cheboygan River, is about 10 miles long and 3 miles wide. The lake is generally deep, with depths over 100 feet in the S central part. The entrance to the Cheboygan River at the N end of the lake is marked by a buoy and a light. A detached 4-foot shoal marked by a lighted buoy is about 1.7 miles SSW of the Cheboygan River entrance. A 2-foot shoal extends 0.6 mile off the W shore of the lake at the S end. A small-craft basin protected by jetties is at Aloha State Park on the E side of the lake. The outer ends of the jetties are marked by private lights.

(320) **Indian River** flows NE from Burt Lake and empties into the S end of Mullett Lake. The lower 2 miles of the river is about 0.7 mile wide, but is filled with marsh, stumps, and snags. The upper part of the river is narrow and curving. A narrow winding dredged channel, well marked by daybeacons, leads through the river. A lighted buoy marks the entrance from Mullett Lake. Parallel jetties protect the Burt Lake entrance; a light marks the outer end of the N jetty.

(321) In Indian River, operation of vessels at high speed or towing water skis or similar contrivances is prohibited between daybeacons 25 and 40 and between daybeacons 57 and 63. A **slow-no wake speed** is enforced between daybeacons 40 and 57 and between daybeacon 63 and the head of the river.

(322) **Burt Lake** is about 10 miles long N and S and has a maximum width near its center of 4 miles. It has depths up to 50 feet and no detached shoals. The mouth of the Crooked River, marked by a light, is near the center of its W side.

(323) The **Crooked River** extends SW from Burt Lake for about 5 miles through marshy ground to the NE end of Crooked Lake. The channel through the lower part of the river is marked by daybeacons. **Alanson, Mich.,** is on the river about 0.7 mile below Crooked Lake. The Crooked Lake entrance to the river is marked by a light.

(324) **Crooked River Lock**, 0.3 mile below Crooked Lake, is usable by vessels to 60 feet long and 16 feet wide. The vertical clearance through the lock is 15 feet when the upper pool (Mullet Lake) is at Low Water

Datum. The depth over the sill is 6 feet when the lower pool (Lake Huron) is at Low Water Datum. (See **33 CFR 207.476,** chapter 2, for lock regulations.)

(325) **Crooked Lake**, roughly triangular, is 4 miles long and about 2 miles wide at its center. **Oden Island,** just E of the center, extends almost across the lake leaving a narrow channel along its N side. The channel through Crooked Lake is marked by buoys and daybeacons. The village of **Oden, Mich.,** is on the N shore of the lake, NW of Oden Island.

Overland Trailer Service

(326) Completing the inland route between Lake Huron and Lake Michigan, a portage service is available at the Windjammer Marina about 1 mile W of the village of Oden. Transportation in either direction can be arranged for trailerable craft to 25 feet long and less than 5,000 pounds gross weight between Crooked Lake and Little Traverse Bay on Lake Michigan, a distance of about 8 miles. An advance notice of 24 hours is requested. Information on fees and reservations may be obtained by telephone or by writing to: Windjammer Marina, Inc., Oden, Mich. 49764; telephone, 616-347-3918.

(327) **Conway, Mich.**, a small community at the W end of Crooked Lake, is the limit of navigation through the Inland Route. There is no navigable water for any type of small craft between Conway and Little Traverse Bay. **Pickerel Channel** leads from the SE side of Crooked Lake for about 0.5 mile to **Pickerel Lake.** The entrance to the channel is marked by a light.

Channels

(328) In November 1998, the controlling depths in the Inland Route were 3 feet in Indian River between Mullet Lake and Burt Lake (greater depths may be available with local knowledge), thence 2½ feet in Crooked River from Burt Lake to Alanson, thence in 1976, ½ foot from Alanson to Crooked Lake. In 1972, the controlling depth in Pickerel Channel was 3 feet.

Small-craft facilities

(329) There are marinas on the upper Cheboygan River, near the N end of Mullett Lake, on the Indian River, on Burt Lake, at Alanson, and near Oden on the N shore of Crooked Lake. Most small-craft facilities are available at these marinas.

Charts 14880, 14881

(330) **Mackinaw City, Mich.**, is a town on **Old Mackinac Point,** the northernmost point of the lower peninsula of Michigan. A water tank, a radio tower, and the abandoned lighthouse on Old Mackinac Point are prominent.

Channels

(331) A harbor basin on the E side of Old Mackinac Point is enclosed by a railroad pier with a breakwater extending N from its outer end and by a combination breakwater and dock extending from shore on the N side of the basin. Lights mark the ends of the breakwaters at the entrance. In September 2004, the controlling depth was 9.5 feet with lesser depths along the S edge.

Dangers

(332) The submerged ruins of piers are 1,200 feet N and 200 feet S of the railroad pier. Each of the ruins extends 600 feet from shore.

Wharves

(333) Passenger ferries operate to Mackinac Island from the State Dock and from a private dock, 800 and 2,700 feet S of the railroad pier, respectively.

Small-craft facilities

(334) A marina developed by the Michigan State Waterways Commission and a private marina are in the harbor basin. Transient berths, gasoline, diesel fuel, water, electricity, sewage pump-out, launching ramp, and harbormaster services are available. The harbormaster monitors VHF-FM channels 16 and 9. The private marina has a 12-ton hoist for hull and engine repairs.

(335) The **Straits of Mackinac** connect Lake Huron and Lake Michigan. From the N side of Bois Blanc Island, the straits lead W through Round Island Passage between Round Island and Mackinac Island, thence between Old Mackinac Point on the lower peninsula and Point St. Ignace on the upper peninsula to Lake Michigan.

(336) **Spectacle Reef**, with a least depth of 5 feet, is in the approach to the Straits of Mackinac, 10.5 miles E of Bois Blanc Island. **Spectacle Reef Light** (45°46.4'N., 84°08.2'W.), 86 feet above the water, is shown from a gray conical tower on a square concrete pier on the NW side of the shoal.

(337) **Raynolds Reef**, with a least depth of 11 feet, is 6 miles E of Bois Blanc Island. A buoy marks each end of the reef, 1.5 miles long E and W.

(338) From **Lafayette Point**, the NE point of Bois Blanc Island, the N shore of the island is generally deep-to for 7.5 miles to **Point Detachee. Lighthouse Point** juts about 2 miles N from midlength of this reach. A shoal with depths of 11 to 19 feet extends 0.6

Structures across the Inland Route

***Miles above Lake Huron**

****Clear width in feet proceeding upstream**

No.	Location and Name	Kind	Miles*	Clear width in feet of draw or span openings**			Clear height in feet above Low Water Datum	Remarks
				Right	Left	Center		
	Cheboygan River							
1	State St. (U.S. Route 23) bridge	Highway	0.92			60	9	Bascule. Note 1.
2	Overhead cable	Power	1.39				47	
3	Overhead cable	Power	1.59				44	
	Cheboygan River Lock		1.64					
4	Overhead cables		1.65				38	Across the lock.
5	Overhead cable	Power	1.74				37	
6	Overhead cable		1.93				26	
7	Lincoln Ave. bridge	Highway	1.93			56	17	Fixed.
7A	Overhead cable		1.93				26	
8	Overhead cable		3.60					Data not available.
9	Overhead cable	Power	3.64				40	
10	Route 33 bridge	Highway	5.25			58	16	Fixed.
11	Overhead cable		5.25				20	
12	Overhead cable	Power	5.26				31	
13	Overhead cable	Telephone	5.27				25	
14	Detroit and Mackinac Ry. bridge	Railroad	5.33			110	21	Fixed.
15	Overhead cable	Power	6.11				40	
16	Overhead cables		6.24					Data not available.
17	Overhead cable	Power	6.71				38	
	Indian River							
18	Route I–75 bridge	Highway	19.67			53	15	Fixed.
19	Overhead cable		20.01				40	
20	ConRail bridge	Railroad	20.52			79	17	Fixed.
21	Route 27 bridge	Highway	20.53			84	15	Fixed.
	Crooked River							
22	Overhead cables	Power & Telephone	29.93				41	
23	Route 68 bridge	Highway	32.75			64	18	Fixed.
24	Overhead cable		32.77				20	
25	Alanson bridge	Highway	32.99			21	5	Swing. Note 2.
	Crooked River Lock		33.36					

Note 1.–See **33 CFR 117.1 through 117.59 and 117.627**, chapter 2, for drawbridge regulations.

Note 2.–See **33 CFR 117.1 through 117.49**, chapter 2, for drawbridge regulations.

mile NW from the point. **Bois Blanc Light** (45°48.6'N., 84°25.3'W.), 32 feet above the water, is shown from a white cylindrical tower on Lighthouse Point. The light is obscured from **311°** to **101°**. From Point Detachee to the W end of Bois Blanc Island, the shoal border increases to a width of about 1 mile.

(339) **Round Island,** small and hilly, is just off the NW end of Bois Blanc Island, separated from it by very shallow water with submerged rocks. Buoys on the S side of Round Island Passage mark shoal water extending N from Round Island. **Old Round Island Point Light** (45°50.2'N., 84°37.0'W.), 53 feet above the water, shown from a red and white conical tower, is privately maintained and is on the NW tip of the island.

(340) **Round Island Passage**, the dredged channel between Round Island and Mackinac Island, had a controlling depth of 28 feet in July 1978. The S edge of the channel is marked by two lighted buoys. The N side of the passage is marked by a lighted bell buoy off the SE end of Mackinac Island and by Round Island Passage Light. **Round Island Passage Light** (45°50'36"N., 84°36'54"W.), 71 feet above the water, is shown from a lighthouse on the N side of the passage about 150 feet outside the channel limit. A fog signal and racon are at the light.

(341) **Mackinac Island**, 0.6 mile NW of Round Island, is about 3 miles long and 1.8 miles wide. The island is very bold, and its shores are generally rocky and deep-to. A lighted bell buoy marks the extent of shoals off the SE corner of the island. A detached shoal with a least depth of 15 feet is 1.4 miles off the E shore of the island, at about its midlength.

(342) A **regulated navigation area** is between the W side of Mackinac Island and the mainland. (See **33 CFR 165.1 through 165.13, and 165.901 (a) and (c),** chapter 2, for limits and regulations.)

(343) **Mackinac Island**, Mich., is a resort village and small-craft harbor on the shores of the semicircular bay at the SE end of Mackinac Island. The bay opens toward the SE between **Biddle Point** on the W and **Mission Point** on the E. A water tank and hotel cupola NW of the harbor entrance and a church spire N of the harbor entrance are prominent. The harbor is partially protected by a breakwater extending S from Mission Point and by a detached breakwater extending SE from off Biddle Point. The outer ends of the breakwaters are marked by lights. While also protected by Mackinac Island and Round Island from N and S winds, respectively, the harbor is subjected to heavy seas through the Straits when the wind is E or W.

(344) On the NW side of the harbor, Union Terminal Piers, Inc. operates a 700-foot passenger pier and a 400-foot coal pier, each marked at the outer end by a private light. In 1969, depths at the outer end of the piers were 13 and 11 feet, respectively.

Ferries

(345) Passenger ferries operate between Mackinac Island and Mackinaw City from May to October and between Mackinac Island and St. Ignace from April to December, ice conditions permitting.

Small-craft facilities

(346) A total of 76 slips, available through reservation only, and harbormaster services are available at the Michigan State Waterway Commission pier on the N side of the harbor. The harbormaster monitors VHF-FM channel 9. In 2002, depths of 7 to 8 feet were reported alongside. Gasoline is available at the coal dock.

(347) **Majors Shoal**, a dangerous rocky ledge with a least depth of 10 feet, is 2.4 miles WSW of Round Island. The ledge, 0.7 mile long E and W, is marked by a buoy and a lighted buoy on the E and W ends, respectively. The ledge is on the S side of the vessel passage between Round Island Passage and Mackinac Bridge.

(348) A wreck, covered 32 feet is 2.1 miles S of Majors Shoal, close S of the vessel route through Straits of Mackinac South Channel.

(349) **Graham Point** (45°51.0'N., 84°42.2'W.) is the SE extremity of Point St. Ignace on the N side of the Straits of Mackinac. In 1971, submerged dock ruins were reported 210 feet off the S shore of Graham Point. **South Graham Shoal,** with a least depth of 2 feet, and **North Graham Shoal,** with a least depth of 4 feet, are 1.5 miles S and 1 mile SE of the point, respectively. South Graham Shoal is marked on the S side by a buoy and North Graham Shoal is marked on the E side by a lighted bell buoy. Depths between the two shoals are 15 to 20 feet, and there is a channel with a least depth of 19 feet between the shoals and Graham Point. Currents in the vicinity of the Graham Shoals and the Straits of Mackinac are often strong and irregular.

(350) **Mackinac Bridge** spans the Straits of Mackinac between Old Mackinac Point and Graham Point. The center suspension span of the bridge has a clearance of 148 feet at the center decreasing to 135 feet at each end. The main navigation channel through this span is marked by lighted buoys. (The bridge is more fully described in chapter 11, Lake Michigan.)

(351) **St. Ignace, Mich.**, is a resort community and ferry terminal in **East Moran Bay** on the N side of Graham Point.

Coast Guard Station

(352) **St. Ignace Coast Guard Station** is on the E side of Graham Point. The Coast Guard station is marked by a light.

Wharves

(353) On the E side of Graham Point, the State of Michigan has constructed two 460-foot docks. The slips on the N side of the S dock and on the S side of the N dock have been dredged to 22 feet and 27 feet, respectively. The slip on the outside of each dock has been dredged to 20 feet. In 1980, the docks were being used for the docking of Coast Guard vessels.

Ferries

(354) Several ferry companies operate from St. Ignace. Several docks in East Moran Bay have passenger ferries to Mackinac Island.

Small-craft facilities

(355) A municipal marina and small-craft basin operated by the city of St. Ignace has 140 berths available for small craft between the Mackinac Transportation Co. dock and the State Dock to the N. The marina provides transient dockage, gasoline, diesel fuel, electricity, pump-out, ice and harbormaster services. The entrance is near the N side of the Mackinac Transportation Co. dock and is best approached from the NE.

(356) **Rabbit Back Peak** is a bold headland jutting E about 4.5 miles N of Graham Point. Shoals with submerged rocks extend 0.5 mile SE from the point. The bight on the S side of the point has shoals to 0.8 mile offshore. The bay between Rabbit Back Peak and **Grosse Point** (45°58.5'N., 84°41.2'W.), 4 miles N, has shoals extending 1 mile offshore in the N part. Grosse Point should be given a berth of 0.5 mile.

(357) **St. Martin Bay**, 7 miles N of Mackinac Island, is formed between Grosse Point on the W and **St. Martin Point** (45°58.1'N., 84°31.7'W.) on the E. St. Martin Island and Big St. Martin Island divide the mouth of the bay into three deep passages. The bay has depths of 24 feet to within 1 mile of shore except in the NW and NE corners where the sandy flats extend 1.5 miles offshore.

(358) **Big St. Martin Island**, 2 miles E of Grosse Point, has deep water within 0.5 mile of its shores. **St. Martin Island,** 1.5 miles E of Big St. Martin Island, has deep water within 0.3 mile of shore except on the S side where shoals with small islets and rocks, awash and submerged, extend about 1 mile S.

(359) A small islet is 0.6 mile S of St. Martin Point with shoals between and extending about 0.3 mile S and SE from the islet. **Search Bay** is between St. Martin Point and **Brulee Point,** about 3 miles E. The bay has deep water to within 1 mile of its head except for a 16-foot spot in the middle of the entrance.

Charts 14881, 14885

(360) **Goose Island**, 3.3 miles SE of Brulee Point, is 1.3 miles long NW and SE and 1,000 feet wide or less. The island is on a very shallow bank that extends about 0.5 mile offshore around the island. The bank is covered with numerous small islets and rocks, submerged and awash. The S end of the bank is marked by a buoy. **Goose Island Shoal,** with a least depth of 2 feet, is 3 miles SW of Goose Island. The shoal is marked on the SE side by a buoy and on the W side by a lighted buoy.

Charts 14880, 14881, 14885

(361) **Les Cheneaux Islands** are an extensive island group bordering the shore for about 15 miles E from Brulee Point. The islands and their neighboring shoals, as well as the numerous points jutting among them from the adjacent shoreline, have a characteristic trend from NW to SE. The many inlets and channels formed between the islands and points have considerable deep water, but are so obstructed by banks and detached shoals as to be navigable only by small craft.

Channels

(362) A small-craft channel, marked by lighted and unlighted buoys, leads from Brulee Point on the W generally between the N side of the islands and the mainland to the E entrance through **Scammons Harbor,** about 8 miles E of Brulee Point. The channel is dredged along the N sides of **Marquette Island** and **La Salle Island,** the largest islands in the group. Another dredged channel leads through **Middle Entrance** between Marquette Island and **Little La Salle Island.** In 1994, the controlling depths were 7 feet along the N side of Marquette Island in Les Cheneaux Channel, and 6½ feet (7 feet at midchannel) in the channel to the W and N of La Salle Island. The controlling depth was 6½ feet in the Middle Entrance channel. In 1999, a large rock was reported to be in Les Cheneaux Channel about 250 feet SE of Buoy 15 in about 45°59'34"N., 84°23'55"W.

(363) Numerous private buoys and several private lights mark small-craft hazards, such as rocks and shoals, throughout the island group. Several private buoys also mark secondary channels used by local boatmen.

(364) **Hessel, Mich.**, is a town 3 miles NE of Brulee Point opposite the NW end of Marquette Island. A public docking facility developed by the Michigan State

Waterways Commission behind a breakwater just S of the Post Office provides water, transient berths, gasoline, electricity, sewage pump-out facilities, a launching ramp and harbormaster services. The harbormaster monitors VHF-FM channels 16 and 9. Marinas to the E and W provide gasoline, diesel fuel, and marine supplies. A 25-ton hoist is available for hull and engine repairs.

(365) **Cedarville, Mich.**, is 3.3 miles E of Hessel, opposite the N end of La Salle Island. A marina 0.8 mile S of the town provides transient berths, water, electricity, sewage pump-out, and marine supplies. A 50-ton lift can handle 60-foot boats for hull and engine repairs.

(366) **Port Dolomite, Mich.**, on the NE side of the entrance to **McKay Bay** about 4 miles E of Cedarville, is a private dock of the Michigan Limestone Operations, Cedarville Plant. A privately dredged approach channel, marked by a private 309° lighted range, leads to the SW side of the dock where vessels berth. In July 2004, the controlling depth alongside the dock was 23 feet. A lighted buoy just S of the dock marks the N end of a shoal with a least depth of 16 feet.

(367) There are several dangers in the approach to Port Dolomite. **Crow Island,** 2 miles SE of Port Dolomite, is marked by a light. Shoals extend 0.1 mile N and 0.5 mile SE from the island. A shoal, 0.4 mile SW of Crow Island, has a least depth of 10 feet and is marked off the SE side by a lighted buoy. **Surveyors Reef**, 1 mile SE of Crow Island, has several bare spots and is marked on the NW end by a lighted buoy. **Tobin Reef,** with several bare spots, is marked at the NW end by a buoy 1.3 miles SE of Surveyors Reef. A 16-foot shoal is 0.6 mile W of Tobin Reef. **Pomeroy Reef,** with a least depth of 12 feet, is 0.9 mile S of Tobin Reef. A lighted gong buoy off the W end of the reef marks the turning point for vessels bound for Port Dolomite.

Charts 14880, 14881, 14882

(368) **Martin Reef**, with a least depth of 1 foot, is about 1.5 miles E of Pomeroy Reef. It is at the E end of Les Cheneaux Islands and is the outermost danger in this stretch, lying near the vessel route between De Tour Passage and the Straits of Mackinac. **Martin Reef Light** (45°54.8'N., 84°08.9'W.), 65 feet above the water, is shown from a white square tower on a concrete crib on the SE part of the reef. A fog signal is at the light. The light should not be passed close aboard even by shallow-draft vessels, because of protective riprap.

(369) From **Beaver Tail Point** (45°58.0'N., 84°10.3'W.) E for 12.5 miles to Point De Tour, the shoreline continues irregular with numerous off-lying shoals and small islands, and should be given a berth of 1.3 miles. **Beaver Tail Reef,** with a least depth of 5 feet and submerged rocks, is 1 mile SE of Beaver Tail Point. **St. Vital Point** (45°56.9'N., 84°00.0'W.), about 8 miles E of Beaver Tail Point, forms the W side of **St. Vital Bay.** Shoals extend about 0.7 mile E from the tip of the point, and shoals extend about 1 mile SE from shore on the NE side of the bay. Between these two banks, there is deep water to within 0.5 mile of the head of the bay. A detached 15-foot shoal is 1.7 miles E of St. Vital Point.

(370) **Point De Tour** (45°57.4'N., 83°54.8'W.) is on the W side of the entrance to De Tour Passage, the entrance to St. Marys River. (The passage is described in chapter 12, St. Marys River.) A shoal with a depth of 11 feet at its outer end extends 0.6 mile SW from the point. **De Tour Reef,** with a least depth of 15 feet, extends about 0.7 mile SE from the point. **De Tour Reef Light** (45°56.9'N., 83°54.2'W.), 74 feet above the water, is shown from a white square tower on a crib on the SE end of the reef. A fog signal, radiobeacon, and a radar beacon (Racon) are at the light. The light marks the W side of the entrance to De Tour Passage.

(371) **Crab Island Shoal**, with rocks nearly awash, is 0.3 mile S of **Crab Island,** which is connected to **Barbed Point** at the W end of Drummond Island. A lighted bell buoy at the W end of the shoal marks the E side of the channel through De Tour Passage.

Charts 14880, *2251, 14882

(372) **Drummond Island**, MI, the easternmost part of the upper peninsula of Michigan, extends from De Tour Passage 20 miles E to False Detour Channel and has a maximum width of about 12 miles N and S. The S shore of the island fronts on Lake Huron, the NE shore on North Channel, and the NW shore is indented by Potagannissing Bay.

(373) From Barbed Point N for 3 miles to **Black Rock Point** (46°00.6'N., 83°51.9'W.), the W shore of Drummond Island fronts De Tour Passage. Osborne Materials Company operates a dock for the shipment of dolomite 1.3 miles N of Barbed Point. The 800-foot dock has a deck height of 10 feet and depths of 23 feet reported alongside. A conveyor system can load vessels at 4,000 tons per hour. When approaching or leaving the dock, avoid the shoals marked by buoys N and S of the dock.

(374) **Potagannissing Bay**, a deep, wide passageway between the NW side of Drummond Island and St. Joseph Island, connects the W end of North Channel with the St. Marys River immediately N of De Tour Passage. However, the bay is obstructed by numerous islands and by many shoals which make up abruptly from deep water. A channel marked by lights and lighted and unlighted buoys leads through the NW part of the bay.

(375) Potagannissing Bay indents the NW shore of Drummond Island between **Dix Point** (46°01.5'N., 83°50.7'W.) and **Chippewa Point** (46°05.9'N., 83°43.2'W.). **Drummond, MI,** a town on the S side of the indentation 4.5 miles E of Dix Point, has a sawmill and limestone quarries. A marina at the town provides gasoline, diesel fuel, water, electricity, sewage pump-out, marine supplies, and a launching ramp. A 75-ton hoist can handle craft to 90 feet for hull and engine repairs.

(376) A **custom station** is at Drummond.

(377) The N shore of Drummond Island, from Chippewa Point to **Raynolds Point** 6.5 miles E, is deep-to. From Raynolds Point SE for 8.8 miles to Marble Head, the shore continues deep-to except in the vicinity of **Shoal Point** (46°03.5'N., 83°33.3'W.). **Humphrey Rock,** covered 9 feet, is 0.9 mile E, and **Lindsay Bank,** with a least depth of 6 feet, is 1.2 miles S. A 14-foot spot is 1.1 miles NNE of Shoal Point. **Marble Head** (45°59.2'N., 83°28.4'W.), the highest point on Drummond Island, is on the W side of the entrance to False Detour Channel from North Channel. Two indentations on the NW side of Marble Head, **Glen Cove** and **Sitgreaves Bay,** provide protection from S and W winds with good anchorage in depths of 24 feet and more, mud and clay bottom.

(378) From Marble Head SSW for 5.5 miles, the shore of Drummond Island fronting False Detour Channel is generally deep-to. The S shore of the island is broken, with numerous indentations and many off-lying shoals and islands. The largest bays, from W to E, are Whitney Bay, Island Harbor, Huron Bay, and Big Shoal Cove. These natural harbors have depths of 24 to 40 feet, but because of numerous obstructions, they should not be entered in foggy weather or without local knowledge.

(379) **Whitney Bay**, on the E side of Barbed Point, is separated from the lake by several islands with two deep channels, marked by private buoys, leading into the bay. Outside the islands in the approach to the bay, several shoals rise abruptly from deep water. The outermost is a rock, covered 7 feet, 0.9 mile S of **Bellevue Island** and marked on the SW side by a buoy. From the buoy a shoal bank extends 0.6 mile E. A 12-foot and a 14-foot spot are 0.5 and 0.8 mile NW of the buoy, respectively. A reef with rocks awash and a reef with rocks just below the surface are 0.4 mile S and SE of Bellevue Island, respectively.

(380) A marina, about 1.2 miles N of Bellevue Island on the N side of Whitney Bay, had reported depths of 8 feet in the entrance and 6 feet alongside the berths in July 2001. The marina provides transient berths, gasoline, diesel fuel, water, electricity, marine supplies, a launching ramp, a 5-ton hoist, and hull and engine repairs.

(381) **Island Harbor**, 3 miles SE of Barbed Point, is separated from Whitney Bay by **Point Anderson. Espanore Island,** 0.8 mile SE of Point Anderson, encloses Island Harbor on the SW. A 1-foot reef with scattered boulders is 0.8 mile NW of the SW end of Espanore Island with a 13-foot shoal between. A rocky ledge extends 0.7 mile S from the island, and a ledge with rocks awash that extends 0.4 mile E from the island narrows the entrance to Island Harbor to about 0.25 mile.

(382) **Huron Bay**, 2.5 miles E of Island Harbor, has a deep entrance about 0.4 mile wide on the E side of **Gravel Island.** A ledge with rocks awash extends 0.7 mile S from the E side of the bay. A rocky ledge with depths of 1 to 4 feet extends 0.7 mile S from Gravel Island.

(383) From Huron Bay E for 7 miles to Big Shoal Cove, the shore is bordered by shoals extending about 0.5 mile off. **Holdridge Shoal,** a detached shoal with a least depth of 5 feet, is 2 miles SE of Gravel Island.

(384) **Scammon Cove**, just NW of Big Shoal Cove, is enclosed between **Meade Island** on the W and **Scammon Point** on the SE. **Horseshoe Reef,** awash, is 1.3 miles SW of Meade Island. A large shoal with a least depth of 8 feet is between Meade Island and Horseshoe Reef.

(385) **Big Shoal Cove**, on the E side of Scammon Point, provides good anchorage in 24 to 30 feet, clay bottom. Detached 4-foot and 6-foot shoals, 0.4 mile SE and 0.65 mile ESE of Scammon Point, respectively, are dangerous obstructions in the entrance to the cove. A rocky ledge, with some rocks uncovered, extends 1.5 miles SSW from the E side of the cove entrance. **Big Shoal,** the outer end of the ledge, expands to a width of 1.2 miles. The SW end of the ledge is marked by a buoy.

(386) From Big Shoal Cove E for 4 miles to False Detour Channel, the shore of Drummond Island should be given a berth of 1.5 miles.

Canadian Waters

(387) The **International boundary** between the United States and Canada passes through False Detour Channel, around the N side of Drummond Island, MI, through North Channel, and around the S side of St. Joseph Island, Ont., into the St. Marys River.

(388) **False Detour Channel,** a deep wide passage, leads between the E end of Drummond Island, MI, and the W end of **Cockburn Island, Ont.** from Lake Huron to North Channel. A rock, covered 9 feet (2.7 meters), 0.7 statute mile (0.6 nm) SW of the SE point of Drummond Island should be avoided in approaching the passage.

(389) For a description of Cockburn Island, Manitoulin Island, North Channel, and Georgian Bay (in short, all the waters of Lake Huron E of the **International Boundary**) see **Canadian Sailing Directions-Great Lakes, Volume II**.